Series 1960, No. 13

Issued March 1964

SOIL SURVEY

Fayette County Tennessee

OUR SOIL ★ OUR STRENGTH

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
TENNESSEE AGRICULTURAL EXPERIMENT STATION

HOW TO USE THE SOIL SURVEY REPORT

THIS SOIL SURVEY of Fayette County, Tenn., will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid foresters in managing woodland; and add to our knowledge of soil science.

Locating Soils

Use the index to map sheets at the back of this report to locate areas on the large map. The index is a small map of the county on which numbered rectangles have been drawn to show where each sheet of the large map is located. When the correct sheet of the large map has been found, it will be seen that boundaries of the soils are outlined, and that there is a symbol for each kind of soil. All areas marked with the same symbol are the same kind of soil wherever they occur on the map. The symbol is inside the area if there is enough room; otherwise, it is outside the area and a pointer shows where the symbol belongs.

Finding Information

This report contains sections that will interest different groups of readers, as well as some sections that may be of interest to all.

Farmers and those who work with farmers can learn about the soils in the section "Descriptions of Soils" and then turn to the section "Use and Management of Soils." In this way, they first identify the soils on their farm and then learn how these soils can be managed and what yields can be expected. The "Guide to Mapping Units" at the back of the report will simplify use of the map and report. This guide lists each soil and land type mapped in the county, and the page where each is described. It also lists, for each soil and land type, the capability unit and woodland suitability group, and the pages where each of these is described.

Foresters and others interested in woodland can refer to the subsection "Use of Soils as Woodland." In that section the soils in the county are grouped according to their suitability for trees, and factors affecting the management of woodland are explained.

Engineers will want to refer to the subsection "Engineering Uses of Soils." Tables in that section show characteristics of the soils that affect engineering.

Scientists and others who are interested will find information about how the soils were formed and how they were classified in the section "Formation and Classification of Soils."

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest.

Newcomers in Fayette County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County," which gives additional information about the county.

* * * * *

Fieldwork for this survey was completed in 1961. Unless otherwise indicated, all statements in the report refer to conditions in the county at that time. The soil survey of Fayette County was made cooperatively by the Soil Conservation Service and the Tennessee Agricultural Experiment Station.

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REPORT BY ROBBIE L. FLOWERS, SOIL CONSERVATION SERVICE

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UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE TENNESSEE AGRICULTURAL EXPERIMENT STATION

FAYETTE COUNTY occupies 704 square miles, or 450,560 acres, and is in the southwestern part of Tennessee (fig. 1). It extends about 28 miles from north to south and about 25 miles from east to west. Somerville, the county seat, is 40 miles east of Memphis. The county is largely agricultural, and the main crops are cotton and corn. Nearly all of the county is covered with loess. The depth of the loess on gentle slopes ranges from about 12 feet in the western part of the county to about 6 feet in the eastern part. Sediments of the Coastal Plain underlie the loess and are exposed on many of the stronger slopes, particularly those in the eastern part of the county.

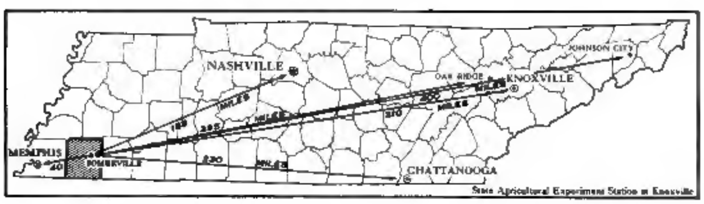

Figure 1.—Location of Fayette County in Tennessee.

How Soils Are Named, Mapped, and Classified

Soil scientists made this survey to learn what kinds of soils are in Fayette County, where they are located, and how they can be used. They went into the county knowing they likely would find many soils they had already seen, and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug or bored many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down to the rock material that has not been changed much by leaching or by roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to uniform procedures. To use this report efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Memphis and Loring, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in natural characteristics.

Many soil series contain soils that are alike except for texture of their surface layer. According to this difference in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Falaya fine sandy loam and Falaya silt loam are two soil types in the Falaya series. The difference in texture of their surface layers is apparent from their names.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into soil phases. The name of a soil phase indicates a feature that affects management. For example, Memphis silt loam, 2 to 5 percent slopes, is one of several phases of Memphis silt loam, a soil type that ranges from nearly level to moderately steep in Fayette County.

After a fairly detailed guide for classifying and naming the soils had been worked out, the soil scientists drew soil boundaries on aerial photographs. They used photos for their base map because they show woodlands, buildings, field borders, trees, and similar detail that greatly help in drawing boundaries accurately. The soil map in the back of this report was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area consisting dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientist has a problem of delineating areas where different kinds of soils are so intricately mixed, and so small in size, that it is not practical to show them separately on the map.

Therefore, he shows this mixture of soils as one mapping unit and calls it a soil complex. Ordinarily, a soil complex is named for the major soil series in it; for example, Lexington-Ruston complex, 8 to 12 percent slopes. Also, in most mapping, there are areas to be shown that are so rocky, so shallow, or so frequently worked by wind and water that they cannot be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Gullied land, and are called land types rather than soils.

Only part of the soil survey was done when the soil scientist had named and described the soil series and mapping units, and had shown the location of the mapping units on the soil map. The mass of detailed information he had recorded then needed to be presented in different ways for different groups of users, among them farmers, managers of woodlands, and engineers.

To do this efficiently, the soil scientist had to consult with persons in other fields of work and jointly prepare with them groupings that would be of practical value to different users. Such groupings are the capability classes, subclasses, and units, designed primarily for those interested in producing the short-lived crops and tame pasture; woodland suitability groups, for those who need to manage wooded tracts; and the classifications used by engineers who build highways or structures to conserve soil and water.

General Soil Map

After a soil scientist studies the soils in a locality and the way they are arranged, he can make a general map that shows several main patterns of soils, which are called soil associations. Such a map is the colored general soil map in the back of the report. Each soil association, as a rule, contains a few major soils and several minor ones, in a pattern that is characteristic although not strictly uniform.

The soils within any one association are likely to differ from each other in some or in many properties; for example, slope, depth, stoniness, or natural drainage. Thus, the general soil map shows, not the kind of soil at any particular place, but patterns of soils, in each of which there are several different kinds of soils.

Each soil association is named for the major soil series in it, but, as already noted, soils of other series may also be present. The major soils of one soil association may also be present in other associations, but in different patterns.

The general map showing patterns of soils is useful to people who want a general idea of the soils, who want to compare different parts of a county, or who want to know the possible location of good-sized areas suitable for a certain kind of farming or other land use.

The four soil associations in Fayette County are discussed in the following pages.

1. Grenada-Memphis-Loring association: Undulating to rolling soils in thick loess

This soil association occupies about 65 percent of the county and covers most of the western two-thirds. It is made up of undulating to nearly level areas and of low hills with wide tops and short side slopes. There are many small drains. Their valleys are narrow at the head but broaden rapidly downstream.

Figure 2.—**Beef cattle grazing on fescue and ladino clover on Grenada and Loring soils.**

The Grenada soils are dominant. They are moderately well drained, brown silty soils that have a fragipan (dense layer) at a depth of 20 to 30 inches. Grenada soils developed in loess that ranges from 4 to 8 feet in thickness.

Also in this association are the Memphis, Loring, Calloway, and Henry soils. The Memphis soils are deep, well drained, and do not have a fragipan. The Loring soils are well drained and moderately well drained and have a weak fragipan. Calloway soils are somewhat poorly drained, yellowish brown, and have a strong fragipan. The Henry soils are poorly drained, grayish brown, and generally have a fragipan. In drainageways and on flood plains are the Falaya and Collins soils. The Falaya soils are somewhat poorly drained, and the Collins soils are well drained. Small areas of Lexington and Ruston soils, which are well drained, are on some of the stronger slopes.

The Grenada soils make up about 58 percent of this soil association; the Memphis soils, about 9 percent; the Loring soils, about 8 percent; the Calloway soils, about 7 percent; the Henry soils, about 6 percent; and the Falaya, Collins, Lexington, and Ruston soils together, about 12 percent. More than 70 percent of the association is in soils of capability classes II and III. Capability classes are described in the section "Use and Management of Soils."

Because suitable cropland is abundant, operators may choose from several kinds of farming. Most farms are of the general type and are operated full time, but there are some dairy farms and some beef-cattle farms (fig. 2). Cotton is the main cash crop. Although they are suited to many kinds of crops, the soils in this association are susceptible to erosion unless they are protected.

2. Lexington-Ruston association: Rolling to steep soils in thin loess, or in sandy materials of the Coastal Plain

This soil association is made up of low ridges that have long, narrow tops and moderately steep or steep side slopes. Ordinarily, a layer of loess, 2 to 3 feet thick, covers the ridgetop, and sandy material of the Coastal Plain is exposed on side slopes. This association makes up about 10 percent of the county and is in the eastern part.

The Lexington soils occur on the narrow ridgetops and on hillsides. On hillsides, Lexington soils occur with Ruston soils in complex patterns (fig. 3). The Lexington soils developed in a thin mantle of loess over sandy materials, and the Ruston soils developed in sandy materials of the Coastal Plain. On the more sandy hillsides, the Ruston soils occur with Eustis soils. The Eustis soils are brown, very sandy, and somewhat excessively drained. Like the Ruston soils, Eustis soils developed in materials of the Coastal Plain.

Small areas of Memphis, Loring, and Grenada soils are on the wider ridgetops where the loess is thicker. The Memphis soils are deep, well drained, and do not have a fragipan; the Loring soils are moderately well drained to well drained and have a very weak fragipan; the Grenada soils are moderately well drained and have a strong fragipan. On narrow strips of bottom lands are the Vicksburg, Collins, Falaya, and Waverly soils. The Vicksburg soils are well drained, the Collins soils are moderately well drained, the Falaya soils are somewhat poorly drained, and the Waverly soils are poorly drained.

The farms in this association generally are small. Most of them are operated by owners, but some are operated by tenants. Most fields of row crops are on gently sloping ridgetops, along drainageways, and on bottoms. Cotton is the main crop, but corn, cowpeas, sorghum, and soybeans are also grown. Annual lespedeza and sericea lespedeza are the chief plants grown for hay or pasture. Most of the hillsides are in hardwoods, but many small, severely eroded areas that have been cultivated are idle.

The soils along drainageways, on bottoms, and on the less sloping ridgetops are suited to many kinds of crops. Those on the steeper slopes are coarse textured and droughty and are best suited to forestry or pasture.

3. Waverly-Falaya-Collins association: Nearly level, poorly drained to moderately well drained soils on bottom lands

This soil association is made up mainly of wide, nearly level flood plains along the Wolf and Loosahatchie Rivers and their tributary streams. The association occupies about 20 percent of the county.

The Waverly, Falaya, and Collins soils are dominant and consist of recently deposited, mixed silty and sandy alluvium. The Waverly soils are gray, poorly drained soils on the lowest parts of the flood plain. On the higher, better drained parts are the somewhat poorly drained Falaya soils and the moderately well drained Collins soils.

The Memphis, Grenada, Calloway, and Henry soils are also in this association. They developed on terraces and uplands in a thick loess over alluvial material of the Coastal Plain. Drainage ranges from good in the Memphis soils to poor in the Henry. The Grenada, Calloway, and Henry soils have a fragipan. The Memphis, Grenada, Calloway, and Henry soils are extensive along the Wolf River, and the Calloway and Henry soils are extensive along the Loosahatchie River. Small areas of excessively drained Sandy alluvial land are on second bottoms and foot slopes at La Grange near the north side of the Wolf River. Along the Wolf River on terraces and uplands are Lexington soils in a very small acreage.

The Waverly soils make up about 30 percent of this soil association; the Falaya soils, about 25 percent; the Collins soils, about 20 percent; and the Memphis, Calloway, and Henry soils, and Sandy alluvial land, about 25 percent.

Figure 3.—**Lexington-Ruston soil association; Lexington soil on ridgetops and Ruston soil on side slopes above narrow valley.**

Most of the association is made up of soils in capability classes III and IV, and there is a sizable acreage of soils in classes I and II.

Most farms are large, and many are operated by tenants. The farms are general farms, which are operated full time. The better drained areas are mostly cleared and cropped, and the poorly drained areas are mostly wooded. Cotton is the main cash crop, and corn, soybeans, cowpeas, and sorghum are common. Annual lespedeza is the chief plant grown for pasture and hay.

The large, nearly level, uniform slopes permit the use of large units of farm machinery. The better drained soils are well suited to many kinds of crops and can be intensively used for summer annuals. Much of the area is poorly drained and susceptible to flooding.

4. Loring-Memphis-Lexington-Ruston association: Rolling to hilly soils in loess of variable thickness, or in sandy materials of the Coastal Plain

This soil association is made up of broad, gently sloping, irregularly shaped ridgetops; long, moderately steep slopes; and small drainageways and bottoms. It is less dissected than the Lexington-Ruston association. It makes up about 5 percent of the county and is in the southeastern part.

The Memphis and the Loring soils are on broad ridgetops, where they developed in loess that ranges from 3½ to almost 6 feet thick. This loess is thinner than that in the western part of the county. Also on the ridgetops are the less extensive Grenada, Calloway, and Henry soils. The Memphis soils are well drained and do not have a fragipan. The Loring soils are moderately well drained and have a weak fragipan. The Grenada soils are moderately well drained and have a fairly strong fragipan. The Calloway soils are somewhat poorly drained and have a strong fragipan. In this association the poorly drained Henry soils formed in loess that is generally 1 or 2 feet thicker than that of the better drained soils.

The Lexington and Ruston soils occur in complex patterns on hillsides where areas of loess and areas of sandy

Figure 4.—**Sericea lespedeza on strongly sloping Lexington and Ruston soils. Field at upper right has been seeded to sericea lespedeza.**

material intermingle. These patterns are dominant on the long, moderately steep hillsides (fig. 4). Areas of Ruston soils or intermingled areas of Ruston and Eustis soils occupy the sandier hillsides where these soils developed from materials of the Coastal Plain. The Lexington soils are reddish brown, well drained, and developed in loess less than 42 inches thick over sandy material. The Ruston soils are deep, well drained, and have a yellowish-red to red sandy clay loam subsoil. The Eustis soils are brown, sandy, and excessively drained.

On the bottoms and along drainageways are the well drained Vicksburg soils, the moderately well drained Collins soils, the somewhat poorly drained Falaya soils, and the poorly drained Waverly soils. The Grenada, Calloway, and Henry soils are on terraces in areas adjacent to the larger bottoms.

The farms in this association are fairly large general farms, most of which are operated by the owner and one or more tenants. Cotton is the main cash crop, and corn, cowpeas, sorghum, and soybeans are also grown. Annual lespedeza, fescue, ladino clover, and sericea lespedeza are the chief plants grown for hay and pasture. Many formerly cultivated, severely eroded areas on hillsides are now idle or have been planted to pine trees. Many areas on hillsides, however, have never been cleared and are in hardwoods.

The better drained soils on bottoms and on the less sloping ridgetops are suited to many kinds of crops. The strongly sloping silty and sandy soils are susceptible to severe erosion if they are cultivated. They are better suited to pasture or forestry than to crops. As a whole, the soils in this association are not well suited to grain or to cash crops. They are better suited to dairy or beef-cattle farming that is supplemented by a small acreage of cotton or another cash crop.

Descriptions of Soils

In the following pages the soil series of Fayette County are described in alphabetic order. Following a general description of a series, each soil in that series is described. For the first soil there is a detailed description of its profile. That soil is typical of the series and the reader is to assume that other mapping units in the series have essentially the same kind of profile. Differences in mapping units of the same series are indicated in the soil name or are stated in the text.

The approximate acreage and proportionate extent of the soils are given in table 1, and their location can be seen on the detailed map at the back of the report. Many soil terms are defined in the Glossary and in the "Soil Survey Manual" (*5*).[1] Some terms are explained here so that the soil descriptions can be understood more readily.

In describing a soil, the soil scientist assigns a letter symbol, for example, "A," to the various layers or horizons. These letter symbols have a special meaning to soil scientists and others making a special study of the soil. Most readers, however, need to remember only that all symbols beginning with "A" refer to the surface layer; those beginning with "B" refer to the subsoil; those beginning with "C" refer to the parent material; and those beginning with "D" refer to the substratum. It may also be helpful to remember that the small letter "p" indicates a plowed layer and that the small letters "ca" indicate an accumulation of calcium carbonate.

To determine the precise color of a soil, soil scientists compare a soil sample with a standard color chart. They indicate the precise color by a Munsell notation, and they also state the equivalent in words for readers not familiar with the Munsell system. The Munsell notation and its less exact approximation in words are read from the chart; for example, "light gray (10YR 7/2)." In the example given, 10YR is hue, and 7 and 2 are value and chroma, respectively.

The textural name of a soil refers to its content of sand, silt, and clay. Texture is determined by the way the soil feels when it is rubbed between the fingers; it may be checked further by laboratory analysis. Each soil is identified by a textural name, such as silt loam, which refers to the texture of the surface layer.

Structure is indicated by the way the individual soil particles are arranged in larger grains, or aggregates, and the amount of pore space between the grains. The structure of a soil is determined by the distinctness, the size, and the shape of aggregates. For example, a layer may have a weak, medium, blocky structure.

Friable, firm, plastic, and other terms are used to describe consistence. Soil scientists estimate consistence by the way the soil feels. If a piece of soil is easy to crush between the fingers, it is friable. If it is hard to crush, it is firm.

Calloway Series

The Calloway series consists of deep, somewhat poorly drained, level to gently sloping soils on uplands and terraces. These soils are in thick deposits of loess, or windblown material. They have a strong fragipan and are strongly acid.

The surface layer is yellowish-brown silt loam, and the subsoil is yellowish-brown to pale-yellow silt loam. The pan is at a depth of about 2 feet. It is mottled light gray

[1] Italic numbers in parentheses refer to Literature Cited, page 70.

and yellowish brown and, at a depth of about 4 feet, is underlain by sandy or clayey materials of the Coastal Plain. Areas on terraces generally are underlain by water-bearing sand at a depth of 6 to 10 feet.

Calloway soils are throughout the county but are mostly in the western two-thirds. They are on mild slopes with Memphis, Loring, Grenada, and Henry soils but are more closely associated with Grenada and Henry soils than with the Memphis and Loring. The Calloway soils are not so well drained as Memphis, Loring, and Grenada soils but are better drained than the Henry soils.

The native vegetation consisted of hardwoods, mostly oak, hickory, elm, and gum. Much of the acreage has been cleared and is planted to crops commonly grown in the area. Because of the fragipan, Calloway soils are likely to be wet in winter and spring and droughty late in summer. Yields are only fair.

TABLE 1.—*Approximate acreage and proportionate extent of soils*

Soil	Area	Extent
	Acres	*Percent*
Calloway silt loam, 0 to 2 percent slopes	2, 267	0. 5
Calloway silt loam, 2 to 5 percent slopes	4, 337	1. 0
Calloway silt loam, 2 to 5 percent slopes, eroded	8, 155	1. 8
Calloway silt loam, terrace, 0 to 2 percent slopes	1, 237	. 3
Calloway silt loam, terrace, 2 to 5 percent slopes	1, 345	. 3
Calloway silt loam, terrace, 2 to 5 percent slopes, eroded	1, 433	. 3
Collins fine sandy loam	6, 600	1. 5
Collins fine sandy loam, local alluvium	5, 014	1. 1
Collins silt loam	16, 615	3. 7
Collins silt loam, local alluvium	13, 559	3. 0
Falaya fine sandy loam	5, 044	1. 1
Falaya fine sandy loam, local alluvium	2, 208	. 5
Falaya silt loam	32, 537	7. 2
Falaya silt loam, local alluvium	18, 209	4. 0
Grenada silt loam, 0 to 2 percent slopes	871	. 2
Grenada silt loam, 2 to 5 percent slopes	1, 492	. 3
Grenada silt loam, 2 to 5 percent slopes, eroded	41, 696	9. 3
Grenada silt loam, 2 to 5 percent slopes, severely eroded	19, 320	4. 3
Grenada silt loam, 5 to 8 percent slopes	868	. 2
Grenada silt loam, 5 to 8 percent slopes, eroded	978	. 2
Grenada silt loam, 5 to 8 percent slopes, severely eroded	30, 614	6. 8
Grenada silt loam, 8 to 12 percent slopes	2, 161	. 5
Grenada silt loam, 8 to 12 percent slopes, severely eroded	9, 754	2. 2
Grenada silt loam, terrace, 0 to 2 percent slopes	351	. 1
Grenada silt loam, terrace, 2 to 5 percent slopes	258	. 1
Grenada silt loam, terrace, 2 to 5 percent slopes, eroded	1, 146	. 3
Grenada silt loam, terrace, 2 to 5 percent slopes, severely eroded	310	. 1
Grenada silt loam, terrace, 5 to 8 percent slopes, eroded	177	(1)
Grenada silt loam, terrace, 5 to 8 percent slopes, severely eroded	474	. 1
Grenada-Gullied land complex, 5 to 8 percent slopes	6, 513	1. 4
Grenada-Gullied land complex, 8 to 12 percent slopes	18, 927	4. 2
Gullied land, sandy	20, 937	4. 6
Gullied land, silty	17, 310	3. 8
Henry silt loam	9, 128	2. 0
Henry silt loam, overwash	1, 545	. 3
Henry silt loam, terrace	6, 737	1. 5
Lexington silt loam, 2 to 5 percent slopes	1, 596	. 3
Lexington silt loam, 5 to 8 percent slopes	770	. 2
Lexington silt loam, 8 to 12 percent slopes	386	. 1
Lexington silty clay loam, 2 to 5 percent slopes, severely eroded	670	. 1
Lexington silty clay loam, 5 to 8 percent slopes, severely eroded	1, 524	. 3
Lexington silty clay loam, 8 to 12 percent slopes, severely eroded	779	. 2
Lexington-Ruston complex, 8 to 12 percent slopes	1, 340	. 3
Lexington-Ruston complex, 8 to 12 percent slopes, severely eroded	1, 761	0. 4
Lexington-Ruston complex, 12 to 30 percent slopes	11, 103	2. 5
Lexington-Ruston complex, 12 to 30 percent slopes, severely eroded	5, 888	1. 3
Lexington-Ruston-Gullied land complex, 8 to 12 percent slopes	5, 436	1. 2
Lexington-Ruston-Gullied land complex, 12 to 30 percent slopes	12, 927	2. 9
Loring silt loam, 0 to 2 percent slopes	245	. 1
Loring silt loam, 2 to 5 percent slopes	12, 708	2. 8
Loring silt loam, 2 to 5 percent slopes, severely eroded	6, 576	1. 5
Loring silt loam, 5 to 8 percent slopes	535	. 1
Loring silt loam, 5 to 8 percent slopes, severely eroded	3, 094	. 7
Loring silt loam, 8 to 12 percent slopes	291	. 1
Loring silt loam, 8 to 12 percent slopes, severely eroded	1, 372	. 3
Loring silt loam, 12 to 20 percent slopes	302	. 1
Loring silt loam, 12 to 20 percent slopes, severely eroded	576	. 1
Loring-Gullied land complex, 5 to 12 percent slopes	1, 433	. 3
Loring-Gullied land complex, 12 to 20 percent slopes	1, 638	. 4
Memphis silt loam, 0 to 2 percent slopes	340	. 1
Memphis silt loam, 2 to 5 percent slopes	11, 320	2. 5
Memphis silt loam, 5 to 8 percent slopes	395	. 1
Memphis silt loam, 8 to 12 percent slopes	462	. 1
Memphis silty clay loam, 2 to 5 percent slopes, severely eroded	3, 248	. 7
Memphis silty clay loam, 5 to 8 percent slopes, severely eroded	2, 520	. 6
Memphis silty clay loam, 8 to 12 percent slopes, severely eroded	1, 109	. 2
Memphis-Gullied land complex, 5 to 12 percent slopes	1, 676	. 4
Memphis-Gullied land complex, 12 to 20 percent slopes	342	. 1
Ruston sandy clay loam, 12 to 30 percent slopes, severely eroded	669	. 1
Ruston sandy loam, 12 to 30 percent slopes	2, 391	. 5
Ruston-Eustis complex, 12 to 30 percent slopes	1, 711	. 4
Sandy alluvial land	1, 670	. 4
Swamp	3, 114	. 7
Vicksburg fine sandy loam	498	. 1
Vicksburg fine sandy loam, local allu	904	. 2
Vicksburg silt loam	860	. 2
Vicksburg silt loam, local alluvium	518	. 1
Waverly fine sandy loam	956	. 2
Waverly silt loam	32, 672	7. 2
Gravel pits	108	(1)
Total	450, 560	100. 0

[1] Less than 0.1 percent.

Calloway silt loam, 2 to 5 percent slopes (CaB).—This somewhat poorly drained soil is waterlogged much of the winter and spring because, at a depth of about 20 inches, it has a fragipan that restricts drainage.

Soil profile:

A_p—0 to 8 inches, yellowish-brown (10YR 5/4) or dark yellowish-brown (10YR 4/4) silt loam; weak, fine, granular structure; very friable; few concretions.

B_2—8 to 17 inches, yellowish-brown (10YR 5/6) to pale-yellow (2.5Y 7/4) silt loam; moderate, medium, subangular blocky structure; friable.

B_{3m1}—17 to 24 inches, mottled pale-brown (10YR 6/3) and light-gray (10YR 7/2) silt loam with a few dark-brown concretions; weak, medium, angular and subangular blocky structure; compact and brittle in place, hard when dry.

B_{3m2}—24 to 40 inches, light brownish-gray (10YR 5/6) silty clay loam with many coarse mottles of pale brown (10YR 6/3) and yellowish brown (10YR 5/6); weak, coarse, angular blocky structure; compact and brittle in place, hard when dry.

B_{3m3}—40 to 50 inches +, mottled light-gray to gray (10YR 6/1) and brown (10YR 4/4) silt loam with many dark-brown concretions; very weak, coarse, angular blocky structure; compact and brittle in place, hard when dry; brown to dark-brown (7.5YR 4/4) silt loam below 50 inches; few, coarse, light brownish-gray (10YR 6/2) mottles; massive (structureless); friable or firm.

The surface layer ranges from 5 to 12 inches in thickness. The fragipan is 16 to 26 inches from the surface and is 2 to 5 feet thick. It ranges from silt loam to silty clay loam.

Runoff is slow. Permeability is moderate in the surface layer and is slow in the pan. After the soil dries out late in spring, tilth generally is good. From about December to April or May, the subsoil generally is waterlogged because there is a perched water table over the pan layer. The water table is low late in spring, and the soil normally is very dry late in summer.

About 40 percent of Calloway soils is in row crops, mainly cotton, corn, soybeans, and sorghum. About 50 percent is in pasture, chiefly annual lespedeza. Hardwoods are on about 5 percent, and about 5 percent is idle. Because it is wet until late in spring, this soil is not suited to alfalfa and other deep-rooted crops. Most shallow-rooted crops can be grown, but stands may be poor because of excessive water and late planting. Yields can be increased by digging well-placed ditches to divert water. (Capability unit IIIw–1; woodland suitability group 3)

Calloway silt loam, 0 to 2 percent slopes (CaA).—This soil is more nearly level than Calloway silt loam, 2 to 5 percent slopes, and generally has a slightly thicker surface layer.

Because runoff is slow to very slow and a water table is perched above the pan, this soil stays wet until late in spring. In many places additional water flows in from adjacent slopes. Permeability is moderate in the surface soil but is slow in the pan. Late in summer only a small to medium amount of water is available to plants. The tilth depends mainly on the moisture content of the soil and is generally good to fair.

Almost half the acreage of this soil is used for crops and half for pasture, but a few areas are in trees or are idle. Most crops generally grown in the area, except alfalfa, are suited, but there is some risk of poor stands and low yields because of excessive water and late planting. Excessive water also limits the use of heavy machinery late in spring. Even in favorable years, large amounts of lime and fertilizer are needed for high yields. (Capability unit IIIw–1; woodland suitability group 3)

Calloway silt loam, 2 to 5 percent slopes, eroded (CaB2).—This gently sloping soil is more eroded than Calloway silt loam, 2 to 5 percent slopes, but in most places receives less water from adjacent slopes.

Runoff is slow to medium, and the available water capacity is low in dry periods. After the soil dries out in spring, tilth is generally good to fair.

Most of this extensive soil has been cleared and is cultivated or pastured, but some fields are idle. Corn, cotton, soybeans, and sorghum are suitable crops. Because it is somewhat poorly drained, this soil is not suited to alfalfa. It is suited to red clover, white clover, lespedeza, tall fescue, and other plants more tolerant of a wet soil than alfalfa. Delayed planting, poor stands, and low yields are frequent because this soil stays wet late in spring. Because the root zone is shallow, plants may be injured by drought late in summer. (Capability unit IIIw–1; woodland suitability group 3)

Calloway silt loam, terrace, 0 to 2 percent slopes (CbA).—This is a somewhat poorly drained soil with a fragipan at a depth of 18 to 24 inches. It is in loess that is underlain by sand at a depth of 6 to 10 feet. The water table is commonly at 7 or 8 feet.

Soil profile:

A_p—0 to 6 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; few concretions.

B_2—6 to 19 inches, yellowish-brown (10YR 5/4) silt loam; moderate, medium, subangular blocky structure; friable.

B_{3m1}—19 to 26 inches, mottled pale-brown (10YR 6/3) and light-gray (10YR 7/2) silt loam with dark-brown concretions; weak, medium, angular and subangular blocky structure; compact and brittle in place, hard when dry.

B_{3m2}—26 to 37 inches, gray (10YR 6/1) silty clay loam with many fine mottles of pale brown (10YR 6/3) and yellowish brown (10YR 5/6); weak, coarse, blocky structure; compact and brittle in place, hard when dry.

B_{3m3}—37 to 52 inches, mottled light-gray (2.5Y 7/2) and brown (7.5YR 4/4) silt loam with many dark-brown concretions; very weak, coarse, blocky structure; compact and brittle in place, hard when dry.

B_{3m4}—52 to 69 inches +, mottled brown to dark-brown (7.5YR 4/4) and light brownish-gray (10YR 6/2) silt loam; massive (structureless); compact and brittle in place, friable when crushed; sand is mixed with the silt at about 6 feet and increases with increasing depth; loose sand and water table at about 7½ feet.

The silty material overlying the sand is generally 6 to 10 feet thick, but the range is 3½ to about 15 feet. In some areas sandy sediments have recently washed from nearby soils and are in small patches. The surface layer ranges from 5 to 12 inches in thickness. The pan is 16 to 26 inches from the surface and is 2 to 6 feet thick. It is silt loam to silty clay loam.

This soil is strongly acid and low in natural fertility. It has slow to very slow runoff. Permeability is moderate in the surface soil and slow in the pan. The tilth is generally good but varies according to the content of moisture. In winter and spring a perched water table above the pan keeps this soil wet and limits the root zone to a depth of about 20 inches. In summer the perched water table disappears, and plants may be injured by drought.

Most areas of this soil have been cleared and cropped, but some areas are in woods. Wooded areas are generally adjacent to larger areas of poorly drained Henry soils. Tall fescue, soybeans, annual lespedeza, and sorghum are suitable crops. Even in favorable years, this soil needs to be limed, fertilized, and otherwise well managed if it is to produce high yields. (Capability unit IIIw–1; woodland suitability group 3)

Calloway silt loam, terrace, 2 to 5 percent slopes (CbB).—This soil is in the same general area as Calloway silt loam, terrace, 0 to 2 percent slopes, but is more sloping and has more rapid runoff. Otherwise the two soils are similar.

This soil is mostly cleared and used for row crops or pasture, but a few areas are wooded or are idle. It is more sloping than Calloway silt loam, terrace, 0 to 2 percent slopes, and most areas dry out a little earlier in spring. Suitable crops include tall fescue, lespedeza, soybeans, and sorghum. Some farmers are fairly successful in growing cotton when they add large amounts of lime and fertilizer, but even then yields are low in dry years. (Capability unit IIIw-1; woodland suitability group 3)

Calloway silt loam, terrace, 2 to 5 percent slopes, eroded (CbB2).—This sloping soil is more eroded than Calloway silt loam, terrace, 0 to 2 percent slopes, and has a thinner surface layer and a rougher surface. Less water runs in from adjacent slopes. Consequently, this soil dries out and can be planted earlier in spring than the more nearly level, less eroded soil.

Most of the acreage has been cleared and is cultivated, but a few acres are wooded. About one-half of the cleared acreage is in row crops, and the rest is in hay or pasture or is idle. Tall fescue, soybeans, lespedeza, and sorghum are among the suitable crops. Some farmers are fairly successful in growing cotton when they add large amounts of lime and fertilizer, but even in favorable years, yields are fairly low. (Capability unit IIIw–1; woodland suitability group 3)

Collins Series

In the Collins series are moderately well drained, nearly level, acid soils that are on bottom lands and along narrow drainageways. These soils consist of recently deposited silty and sandy alluvium that was washed from nearby Memphis, Loring, Grenada, and Henry soils.

The surface layer of Collins soils is brown silt loam to brown fine sandy loam. The subsoil is brown silt loam to brown fine sandy loam mottled with gray. In some places the lower part of the subsoil is silty clay loam. In many places a layer of recently deposited alluvium, 14 to 36 inches thick, overlies an older, poorly drained soil. Some of the recent alluvium is mottled with gray along thin lenses that have a platy structure. These mottles are not thought to indicate restricted drainage.

The Collins soils occur with Vicksburg, Waverly, and Falaya soils but are more closely associated with the Falaya soils than with Vicksburg or Waverly. Collins soils are not so well drained as the Vicksburg soils but are better drained than the Falaya and Waverly soils.

The native vegetation consisted of hardwoods, mostly oak, gum, hickory, ash, and elm. Nearly all of the acreage has been cleared and is farmed rather intensively. Corn, cotton, soybeans, and lespedeza are the main crops. Most crops commonly grown in the area are suited to Collins soils.

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Collins silt loam (Co).—This is a nearly level, moderately well drained silty soil on bottom lands and along drainageways.

Soil profile:

A_p—0 to 6 inches, brown (10YR 5/3 to 4/3) silt loam; weak, fine, granular structure; very friable.

C_1—6 to 18 inches, brown (10YR 4/3) silt loam with thin layers of brown (10YR 5/3) silt; massive (structureless); weak, fine, granular structure; very friable.

A_{1b}—18 to 24 inches, brown (10YR 4/3) silt loam with common medium mottles of pale brown (10YR 6/3), gray (10YR 5/1), and grayish brown (10YR 5/2); weak, fine, granular structure; very friable; few dark-brown, soft concretions.

B_{2bg}—24 to 37 inches, brown (10YR 5/3) silt loam with many mottles of light brownish gray (10YR 6/2), gray (10YR 5/1), and yellowish brown (10YR 5/6); weak, medium, angular and subangular blocky structure to massive (structureless); very friable; few to many, soft, brown and black concretions.

B_{3bg}—37 to 49 inches, grayish-brown (10YR 5/2) silt loam with many mottles of gray (10YR 6/1 to 5/1), yellowish brown (10YR 5/6), and brown (10YR 5/3); weak, fine and medium, subangular blocky structure to massive (structureless); friable; few small, soft, dark-brown concretions.

B_{3bmg}—49 to 73 inches, mottled gray (10YR 6/1), grayish-brown (10YR 5/2), light brownish-gray (10YR 6/2), and yellowish-brown (10YR 5/6) silt loam; weak, medium, subangular blocky structure to massive (structureless); friable when crushed, brittle in place; many small, dark-brown, soft concretions; thin gray (10YR 5/1) silt streaks, 1/4 to 1 inch wide, on blocks of structure.

B_{3bm}—73 to 102 inches, grayish-brown (10YR 5/2) loam with many mottles of gray (10YR 6/1), dark yellowish brown (10YR 3/4), and yellowish brown (10YR 5/4); massive (structureless); friable when crushed, brittle in place; many soft, dark-brown concretions; seams of gray silt.

D_o—102 to 112 inches +, dark grayish-brown (10YR 4/2) loamy sand or sand; single grain (structureless).

In many places the surface layer is directly underlain by a dark brown layer that, before it was buried, was the surface layer of an old, poorly drained or somewhat poorly drained soil.

Runoff is slow. Permeability is moderate in the surface soil and moderately slow in the subsoil. The available water capacity is very high, and tilth is generally good.

Most of this soil has been cleared and is intensively cultivated. Cotton and corn are the main crops. This soil responds well to good management, but crops may be damaged by floods. Some fields dry out so late in spring that they cannot be planted early. (Capability unit I–3; woodland suitability group 4)

Collins silt loam, local alluvium (Cu).—This soil is at the mouth of tributaries where they run into large streams. It is also along drainageways adjacent to silty soils on uplands and terraces. It is scattered throughout the county but is mainly in the western part. This soil is similar to Collins silt loam, but it is generally in smaller areas and is less likely to be flooded. But sediments from nearby slopes wash onto Collins silt loam, local alluvium, in many places. Permeability is moderate in the surface soil and is moderately slow in the subsoil. The available water capacity is very high, and tilth generally is good.

About 60 percent of this soil is in crops, chiefly cotton, corn, soybeans, cowpeas, and sorghum. About 20 percent

is in pasture, mainly lespedeza and some fescue and ladino clover. About 15 percent is in hardwoods, and 5 percent is idle. Yields are high. Crops are less likely to be damaged by overflow than they are on Collins silt loam, which is on the larger flood plains. Some areas, however, dry out late in spring. (Capability unit I–3; woodland suitability group 4)

Collins fine sandy loam (Cf).—This soil is on large bottom lands. In some places it is near the streams, and in other places it is near hills in areas where sand is spread during floods. This soil is sandier in the surface layer than Collins silt loam and is generally sandier in the lower layers, but the content of sand varies greatly in the lower layers.

Runoff is slow. Permeability is moderate in the surface soil and moderately slow in the subsoil. The water table is fairly high. Most areas are flooded frequently in winter and late in spring, but flooding is infrequent in summer. The available water capacity is high or very high, and tilth generally is good. Natural fertility is moderate to moderately low.

The soil is mostly in large fields. Except in areas that dry out late in spring, this soil can be farmed with heavy equipment. It is suitable for intensive cultivation of many kinds of crops. Cotton and corn are the chief row crops, and annual lespedeza is the chief pasture and hay crop. Also grown are soybeans, cowpeas, sorghum, and other crops common in the area. This soil is productive and responds to good management. (Capability unit I–3; woodland suitability group 4)

Collins fine sandy loam, local alluvium (Cm).—This soil occupies areas where small streams empty onto the large flood plains. Most areas are in the eastern third of the county. This soil is sandier in the surface layer than Collins silt loam and generally is sandier in underlying layers. It is not flooded so frequently as Collins silt loam.

Runoff is slow. Permeability is moderate in the surface layer and is moderately slow in the subsoil. The available water capacity is high to very high. Natural fertility is moderate to moderately low, and tilth is generally good.

Most of this soil has been cleared and is cropped, but some areas are wooded and some are idle. This soil is productive and is suited to intensive cropping if further deposits of sand are prevented and lime and fertilizer are added in appropriate amounts. (Capability unit I–3; woodland suitability group 4)

Falaya Series

The Falaya series consists of somewhat poorly drained, nearly level, strongly acid soils on bottom lands. These soils are in recently deposited silty alluvium and sandy alluvium. The silty alluvium was washed from nearby Memphis, Loring, Grenada, Calloway, and Henry soils, and the sandy alluvium was washed from materials of the Coastal Plain.

The silty alluvium is 8 inches to about 20 feet thick and is underlain by silty or sandy material. In many places a thin, silty layer overlies an old, poorly drained soil. Some of the recently deposited material is mottled with gray along thin lenses that have a platy structure. These mottles probably are not the result of restricted drainage.

The Falaya soils adjoin the Vicksburg, Collins, and Waverly soils. They are more poorly drained than the Vicksburg and Collins soils and are better drained than the Waverly soils.

The native vegetation consisted of hardwoods, mainly oak, gum, elm, willow, sycamore, and hackberry. Although Falaya soils are moderate in natural fertility, their content of potassium generally is low. These soils are extensive. They are used to produce most crops commonly grown in the area.

Falaya silt loam (Fm).—This is a somewhat poorly drained, nearly level soil on bottom lands.

Soil profile:

A_p—0 to 10 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable.

C_1—10 to 23 inches, mottled light-gray (2.5Y 7/2), strong-brown (7.5YR 5/6), and yellowish-brown (10YR 5/6) silt loam; massive (structureless); friable.

C_2—23 to 52 inches, brown to dark-brown (7.5YR 4/4) silt loam with many coarse mottles of light brownish gray (10YR 6/2); massive (structureless); friable.

C_{3g}—52 to 72 inches +, light-gray (2.5Y 7/2) silt loam with common medium mottles of yellowish brown (10YR 5/6) and dark brown (7.5YR 4/4); massive (structureless); friable.

The layers below the surface layer range from silt loam to silty clay loam.

Runoff is slow to very slow. Permeability is moderate in the surface soil and moderately slow in the subsoil. The water table of this soil fluctuates; it is near the surface in winter and spring but falls to a depth of 3 to 12 feet in summer. The available water capacity is high. Tilth varies according to the content of moisture and is generally fair to good.

About 90 percent of this soil is cleared and is used mainly for cotton, corn, and annual lespedeza. The rest is in hardwoods. Yields are good when water is not excessive. Floods do some damage every year and in some years destroy an entire crop. This soil generally dries late in spring. Management should provide surface drainage if outlets are available, and appropriate additions of lime and fertilizer. (Capability unit IIIw–2; woodland suitability group 6)

Falaya silt loam, local alluvium (Fu).—This soil is generally in local alluvium that fans out from small bottoms onto large flood plains. It generally is not flooded so frequently as Falaya silt loam.

Runoff is slow to very slow. Permeability of the surface layer is moderate, and that of the subsoil is moderately slow. The water table of this soil fluctuates. It is near the surface in winter and early in spring. The available water capacity is very high. Tilth is generally fair to good and varies according to the content of moisture.

Most of this soil has been cleared and is cultivated. Cotton and corn are the main crops, and lespedeza is the main plant seeded for hay and pasture. Yields are good if moisture is not excessive. Although most crops commonly grown in the area are suited, planting may be delayed in spring because the soil is slow in drying. Good management of this soil provides for removal of excess water, if practical, and additions of lime and fertilizer. (Capability unit IIIw–2; woodland suitability group 6)

Falaya fine sandy loam (Fa).—This soil is on large flood plains. It is sandier in the surface layer than Fa-

laya silt loam and in most places, is sandier in underlying layers.

Runoff is slow to very slow. Permeability is moderate in the surface layer and moderately slow in the subsoil. The available water capacity is high or very high, and natural fertility is moderate to moderately low. Tilth varies according to the content of moisture and is fair to good. This soil is flooded frequently.

About 75 percent of this soil is in row crops, chiefly cotton and corn. About 5 percent is idle, 5 percent is in pasture, and 15 percent is wooded. Although yields of row crops are normally high if management is good, they are often reduced by floods. Good management provides the diversion or removal of excess water and appropriate addition of lime and fertilizer. (Capability unit IIIw–2; woodland suitability group 6)

Falaya fine sandy loam, local alluvium (Ff). This soil is at the mouth of small streams that empty onto large flood plains. It is mainly in the eastern third of the county. The surface layer is sandy, and the underlying layers are generally sandy. This soil is not likely to be flooded frequently.

Runoff is slow to very slow. Permeability is moderate in the surface layer and is moderately slow in the subsoil. The available water capacity is high or very high. Natural fertility is moderate to moderately low, and tilth is generally fair to good.

Most of this soil is cleared and is used for row crops or pasture. Cotton and corn are the main row crops. This soil is suited to intensive use. Although yields are normally high, they may be reduced when water is excessive. Protective practices include digging ditches and constructing diversions. (Capability unit IIIw 2; woodland suitability group 6)

Grenada Series

The Grenada series consists of deep, moderately well drained, level to strongly sloping soils on uplands and terraces. These soils are formed in thick loess. They have a fragipan and are strongly acid.

The surface layer is brown silt loam, and the subsoil is brown or yellowish-brown silt loam or silty clay loam. The pan layer is mottled gray and brown. It occurs at a depth of about 24 inches and is 1 to 5 feet thick. Materials of the Coastal Plain are at a depth of 4 to 8 feet.

The Grenada soils are distributed throughout the county and are extensive in the western part. They are on mild slopes with the Memphis and Loring soils and are in more nearly level areas with the Calloway and Henry soils. The Grenada soils are not so well drained as the Memphis and Loring soils but are better drained than the Calloway and Henry soils. The fragipan in Grenada soils is deeper, thinner, and less compact than that in Calloway or Henry soils.

The native vegetation consisted of hardwoods, mainly oak, hickory, and gum. More than half of the total acreage has been cleared and is cultivated.

Grenada soils are suited to most crops commonly grown in the county. Because of the fragipan, these soils are likely to be slightly wet in winter and spring and droughty late in summer.

Grenada silt loam, 2 to 5 percent slopes, eroded (GaB2).—This is a moderately well drained, silty soil on uplands. It has a fragipan at a depth of about 2 feet.

Soil profile:

A_p—0 to 5 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable.

B_{21}—5 to 16 inches, brown (7.5YR 4/4) silty clay loam or silt loam; moderate, medium, subangular blocky structure; friable or firm.

B_{22}—16 to 22 inches, brown (7.5YR 4/4) silt loam with few fine mottles of pale brown (10YR 6/3); weak, medium, subangular blocky structure; friable or firm.

B_{3m1} 22 to 29 inches, mottled brown (7.5YR 4/4), pale-brown (10YR 6/3), and light-gray (2.5Y 7/2) silt loam; weak, medium, subangular blocky and angular blocky structure; friable when crushed, compact and brittle in place.

B_{3m2}—29 to 40 inches, mottled light-gray (2.5Y 7/2), yellowish-brown (10YR 5/6), and brown (7.5YR 4/4) silt loam; weak, coarse, blocky structure; very friable when crushed, compact and brittle in place.

B_{3m3}—40 to 51 inches, mottled light-gray (2.5Y 7/2), yellowish-brown (10YR 5/6), and brown to dark-brown (7.5YR 4/4) silt loam; weak, coarse, blocky structure; friable when crushed, compact and brittle in place.

C—51 to 72 inches +, brown to dark-brown (7.5YR 4/4) silt loam with many coarse mottles of pale brown (10YR 6/3), yellowish brown (10YR 5/6), and light gray (5Y 7/1); massive (structureless); friable; layer is about 4 feet thick and is on sandy marine sediments.

The surface layer ranges from 4 to about 8 inches in thickness. The pan is at a depth of 20 to 30 inches and ranges from 1 to 5 feet in thickness. Included with this soil are patches that have a plow layer of silty clay loam.

Runoff is medium to slow. Permeability is moderate above the fragipan and slow in it. The available water capacity and natural fertility are moderate, and the content of organic matter is low.

This is one of the most extensive soils of the county. Most of the acreage has been cleared and is cropped. About 50 percent is in crops, 40 percent is in pasture, and 10 percent is idle. Cotton is the main cultivated crop, but most crops common in the county are grown. The gentle slopes and good tilth favor cultivation, but further erosion is a moderate hazard. Because the lower subsoil may be waterlogged in winter and spring, alfalfa and similar crops are not suited. (Capability unit IIe–2; woodland suitability group 2)

Grenada silt loam, 0 to 2 percent slopes (GaA). –This soil is in the same general area as other Grenada soils. Included with this soil are a few small, moderately eroded patches.

This soil has slow runoff and, in places, dries out slowly in spring. Permeability is moderate above the fragipan and is moderately slow in it. Natural fertility and the available water capacity are moderate, and tilth is generally good.

About half the small total acreage of this soil is in row crops, and most of the rest is in pasture. A few acres are in hardwoods. Most of the pasture is unimproved. Cotton and corn are the main row crops, and annual lespedeza is the main plant grown for pasture and hay.

Because tilth is generally good and the erosion hazard is only slight, this soil can be used intensively. It responds well to good management. Most crops common in the county can be grown, but some fields dry out late

in spring and some crops may be damaged in summer because not enough moisture is available.

Because the root zone is thin and the soil is waterlogged above the pan late in spring, alfalfa stands last only about 2 years. (Capability unit IIw–1; woodland suitability group 2)

Grenada silt loam, 2 to 5 percent slopes (GaB).—This soil is scattered throughout the county in small areas. Its surface layer is 7 or 8 inches thick and is thicker and more uniform than that in Grenada silt loam, 2 to 5 percent slopes, eroded.

Runoff is moderate to slow, and the erosion hazard is moderate in cleared areas. Permeability is moderate above the pan and slow in it. Natural fertility is moderate, and the available water capacity is moderate to low. Tilth generally is good, and response to fertilization is moderate to high.

Much of this soil is not cultivated, because many of the small areas are not easily accessible or are adjacent to soils less suitable for cultivation. Only about 15 percent of this soil is in cultivated crops. About 60 percent is in cutover hardwoods, and about 25 percent is in pasture. This soil is suited to most row crops common in the area, although yields may be reduced by drought in some years. Much lime and fertilizer are required for continuous high yields of crops and pasture. (Capability unit IIe–2; woodland suitability group 2)

Grenada silt loam, 2 to 5 percent slopes, severely eroded (GaB3).—This soil is more severely eroded than Grenada silt loam, 2 to 5 percent slopes, eroded. Nearly all the original surface layer has been removed, and the plow layer consists mainly of subsoil material. Included with this soil are areas that range from silt to silt loam.

Runoff is moderate, and the erosion hazard is moderate to high. Permeability is moderate in the plow layer but is slow in the pan. Natural fertility is moderate, and the content of organic matter is very low. The available water capacity is moderate to low.

All of this soil has been cleared and cultivated. About 10 percent is idle, about 45 percent is in cultivated crops, and about 45 percent is in pasture. Cotton, small grains, soybeans, and cowpeas are fairly well suited, but yields may be low in dry seasons. Because further erosion is likely, this soil requires careful management that provides crop rotation, cover crops, and contour tillage. (Capability unit IIIe–2; woodland suitability group 2)

Grenada silt loam, 5 to 8 percent slopes (GaC).—This soil is slightly more sloping than Grenada silt loam, 2 to 5 percent slopes, eroded. It is generally in small areas among other Grenada soils.

Runoff is moderate, and in cleared areas the erosion hazard is moderate to high. Permeability is moderate in the surface layer and is slow in the pan. The available water capacity is moderate to low, and natural fertility is moderate.

Most of this inextensive soil is in trees. If the trees were cleared, most crops common in the area could be grown. (Capability unit IIIe–2; woodland suitability group 2)

Grenada silt loam, 5 to 8 percent slopes, eroded (GaC2).—This soil is more sloping than Grenada silt loam, 2 to 5 percent slopes, eroded, but otherwise the two soils are similar. It is in small areas throughout the county. Runoff is moderate, and the erosion hazard is moderate to high. Permeability is moderate above the pan but is slow in it. The available water capacity is moderate to low, and natural fertility is moderate.

Most of the acreage has been cleared, and about half of this is in pasture; the rest is in cultivated crops. Most areas in row crops have been cleared recently. Fairly well suited to this soil are cotton, soybeans, cowpeas, small grains, annual lespedeza, and bermudagrass. If this soil is planted to row crops, practices to control erosion are needed. High yields, however, depend on good weather and frequent applications of lime and fertilizer. (Capability unit IIIe–2; woodland suitability group 2)

Grenada silt loam, 5 to 8 percent slopes, severely eroded (GaC3).—This soil, in most places, has had nearly all of its original surface soil removed by erosion. The plow layer consists mainly of heavy silt loam subsoil material, and the pan is nearer the surface than that in Grenada silt loam, 2 to 5 percent slopes, eroded.

Runoff is moderate to rapid, and the erosion hazard is high. Permeability is moderate in the plow layer and is slow in the pan. The available water capacity is low, natural fertility is moderately low, and the content of organic matter is very low.

This soil has been cleared and row cropped, mainly to cotton. About a third of this soil is in cultivated crops, a half is in pasture, and the rest is idle. A few fields have reseeded naturally to trees, and other fields have been planted to trees, mostly pine.

If it is row cropped, this soil requires stripcropping, long rotations, contour tillage, and other practices to control erosion. Pasture is probably the best use. (Capability unit IVe–2; woodland suitability group 2)

Grenada silt loam, 8 to 12 percent slopes (GaD).—This strongly sloping soil is on hillsides adjacent to other Grenada soils on the broader ridgetops. Its surface soil is more uniform in thickness and texture than that in Grenada silt loam, 2 to 5 percent slopes, eroded.

Runoff is rapid, and the erosion hazard is high in cleared areas. Permeability is moderate in the surface layer and slow in the pan. The available water capacity is low, and natural fertility is moderate.

Almost all of this soil is in hardwoods. Cleared areas would be difficult to protect against erosion, fairly difficult to till, and they would produce only fair yields. Consequently, this soil is probably best suited to permanent pasture, but it could be cultivated occasionally if it were protected. (Capability unit IVe–2; woodland suitability group 2)

Grenada silt loam, 8 to 12 percent slopes, severely eroded (GaD3).—In most places this soil has had nearly all of its original surface soil removed by erosion. The plow layer consists mainly of heavy silt loam subsoil material, and the pan is nearer the surface than that in Grenada silt loam, 2 to 5 percent slopes, eroded. The severely eroded soil is generally on hillsides adjacent to other Grenada soils, which are on the milder, sloping ridgetops.

Runoff is rapid, and the erosion hazard is high. Permeability is moderately slow in the plow layer and slow in the pan. The available water capacity is low. Natural fertility is low, the content of organic matter is very low, and tilth is generally poor.

About 10 percent of this soil is in row crops, about 50 percent is in pasture, and about 20 percent is idle. The rest is planted to trees, mostly pine and locust. This soil

is probably best suited to pasture or trees, for it produces low yields, is difficult to work, and is difficult to protect against erosion. (Capability unit VIe–1; woodland suitability group 2)

Grenada silt loam, terrace, 2 to 5 percent slopes, eroded (GbB2).—This moderately well-drained, silty soil is on terraces. It has a fragipan at about 2 feet and is underlain at about 4 to 6 feet by sandy material.

Soil profile:

A_p—0 to 7 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable.

B_{21} 7 to 16 inches, brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; few fine, soft, brown concretions; friable to firm.

B_{22}—16 to 21 inches, strong-brown (7.5YR 5/6) silt loam; moderate, medium and fine, subangular blocky structure; friable to firm.

B_{3m1} -21 to 31 inches, mottled brown (10YR 5/3), pale-brown (10YR 6/3), and light brownish-gray (10YR 6/2) silt loam; moderate to weak, medium, subangular blocky structure; friable when crushed, compact and brittle in place

B_{3m2}—31 to 43 inches, brown to dark brown (7.5YR 4/4) silt loam with thin streaks of light brownish gray (10YR 6/2); weak, thick and coarse, platy and blocky structure; friable when crushed, compact and brittle in place.

B_{3m3}—43 to 65 inches, reddish-brown (5YR 4/4) to dark-brown (7.5YR 4/4) loam to clay loam with streaks of light brownish gray (10YR 6/2); weak, coarse, blocky structure to massive (structureless); firm and brittle.

D_u—65 to 74 inches +, reddish-brown (5YR 4/4) sandy loam with few coarse mottles of light brownish gray (10YR 6/2); massive (structureless); friable; loose sand at 74 inches.

The thickness of the surface soil ranges from about 4 to 10 inches and depends on the amount of erosion. A few patches have had all their surface layer washed away. The depth to the pan ranges from about 20 to about 34 inches, and the thickness of the pan ranges from about 1 to 5 feet.

Runoff is moderate to slow, and the erosion hazard is moderate. Permeability is moderate above the pan and is slow in it. The available water capacity is moderate, and the content of organic matter is low. Natural fertility is moderate, and tilth is generally good.

Almost all of this soil has been cleared. About 75 percent of the total acreage is used for row crops, mainly cotton and corn, and the rest is used mainly for pasture. Because it has gentle slopes and good tilth, this soil is suitable for cultivation. It is waterlogged seasonally, however, and alfalfa and crops not tolerant of excessive moisture are short lived, although alfalfa may produce well for about 2 years. To control erosion, fields in row crops require crop rotation, contour cultivation, and possibly stripcropping and terracing. Lime and fertilizer are needed for continuous high yields. (Capability unit IIe–2; woodland suitability group 2)

Grenada silt loam, terrace, 0 to 2 percent slopes (GbA).—Most of this soil is in the southern part of the county on the flood plain along Wolf River. A few small, moderately eroded patches are included with this soil.

Runoff is slow. In places the soil dries slowly in spring. Permeability is moderate above the pan and is slow in it. The available water capacity and natural fertility are moderate.

About half of the small total acreage of this soil is in row crops, and the rest is in about equal acreages of pasture and hardwoods. The wooded areas are generally very small and are surrounded by areas of more poorly drained soils on terraces. Although some areas dry out late in spring and some crops are injured during dry periods, this soil is generally suited to rather intensive use. It is suited to practically all common crops, but because the lower part of the subsoil waterlogs seasonally, alfalfa ordinarily does not produce well for more than about 2 years. (Capability unit IIw–1; woodland suitability group 2)

Grenada silt loam, terrace, 2 to 5 percent slopes (GbB).—The silt loam surface layer of this soil is about 8 inches thick. The subsoil is silt loam or silty clay loam that extends to a fragipan at about 2 feet. A few areas receive seepage water and sediments.

Runoff is slow. Permeability is moderate above the pan and is slow in it. The available water capacity and natural fertility are moderate. Tilth is generally good.

Most of the acreage has been cleared and is used for row crops and for hay and pasture. The main row crops are cotton, corn, soybeans, and sorghum. Annual lespedeza is the main plant seeded for hay and pasture. Many areas of this soil are small and are used for the same crops as adjacent soils, which are generally more poorly drained.

Because the slope is mild and tilth is generally good, this soil may be used rather intensively with only moderate practices to control erosion. This soil responds well to good management and is suited to most crops commonly grown in the area. Alfalfa may produce well for 2 or 3 years, but the drainage is not good enough for long-lived stands. (Capability unit IIe–2; woodland suitability group 2)

Grenada silt loam, terrace, 2 to 5 percent slopes, severely eroded (GbB3).—The plow layer is a brown silt loam that is nearly all subsoil material. Below the plow layer and extending to the fragipan is brown or strong-brown silt loam to silty clay loam.

Runoff is moderate, and the erosion hazard is moderately high to high. Permeability is moderate in the plow layer and is slow in the pan. The pan is nearer the surface than it is in less eroded Grenada silt loams on terraces, and the available water capacity is less. The available water capacity is moderate to low. Natural fertility is moderate.

All of this soil has been cleared and cropped, mainly to cotton, corn, and lespedeza. If this soil is planted to row crops, the row crops should be grown in a rotation, and contour cultivation and other practices should be used to control erosion. Response to management is fair to good, and yields of most crops are moderate. Because this soil is often waterlogged above the pan, alfalfa and other deep-rooted crops last for only 2 or 3 years. (Capability unit IIIe–2; woodland suitability group 2)

Grenada silt loam, terrace, 5 to 8 percent slopes, eroded (GbC2).—This soil is generally on terrace breaks. It is between higher, less sloping Grenada soils and lower soils of the bottom land.

Runoff is moderate, and the erosion hazard is high. Permeability is moderate above the pan and is slow in it. The available water capacity is moderate to low, and tilth is generally good to fair.

This soil has been cleared, and about half of the total acreage is in row crops. The rest is in pasture, mainly

annual lespedeza. Most areas have not been row cropped intensively. This soil is suited to most crops but is not suited to those that require much water late in summer. If this soil is cultivated, it needs appropriate practices to control erosion and frequent additions of lime and fertilizer. (Capability unit IIIe-2; woodland suitability group 2)

Grenada silt loam, terrace, 5 to 8 percent slopes, severely eroded (GbC3).—Most of the original surface layer of this soil has been removed, and the plow layer consists mainly of subsoil material. This soil is dominantly silt loam, but included areas range from silt to silty clay loam. The exposed subsoil is yellowish brown. This soil has a pan that is nearer the surface than the pan in Grenada silt loam, terrace, 2 to 5 percent slopes, eroded.

Runoff is moderate to rapid, and the erosion hazard is high. Permeability is moderate in the plow layer and is slow in the pan layer. The available water capacity is low, and natural fertility is moderately low. Tilth is generally fair.

All of this soil has been cleared and cropped, mainly to cotton and corn. If this soil is row cropped, it requires appropriate practices to control erosion, as well as heavy applications of lime and fertilizer. Crops may be injured in summer by drought. This soil is probably best suited to pasture. (Capability unit IVe-2; woodland suitability group 2)

Grenada-Gullied land complex, 5 to 8 percent slopes (GgC).—All the original surface soil and much of the subsoil of this complex have been removed by erosion. Many shallow gullies have cut through the subsoil into the pan.

Runoff is rapid, and the erosion hazard is very high. Permeability is moderate to slow in the plow layer and is slow in the pan. Natural fertility is low, and the content of organic matter is very low. Tilth is generally poor.

About half of the total acreage of this soil is in pasture, about a fifth is in row crops, and most of the rest is idle. Most of the pasture is annual lespedeza and bermudagrass. A few fields have been planted to trees. This soil is difficult to work, and it produces low yields of row crops. The best use is probably pasture or trees. (Capability unit VIe-1; woodland suitability group 2)

Grenada-Gullied land complex, 8 to 12 percent slopes (GgD).—This complex has had almost all of the original surface soil and much of the subsoil removed by erosion. Many shallow gullies have cut into the pan. The complex is on hillsides, usually in areas adjacent to areas of less sloping Grenada soil. It occurs throughout the county, but the larger, more numerous tracts are in the western two-thirds.

Runoff is rapid to very rapid. Permeability is moderately slow in the plow layer and is slow in the pan. The available water capacity is low to very low. Natural fertility is low, and the content of organic matter is very low. Tilth is generally poor to very poor.

About half of this complex is in pasture, and half is idle. Exceptions are some fields that are cropped and small areas that have reseeded to trees. This soil is extremely difficult to protect against erosion, and yields are low to very low. Permanent pasture could be established, but the expense would be high because of necessary land smoothing. Trees are probably the best use. (Capability unit VIIe-1; woodland suitability group 2)

Gullied Land

Gullied land has had 10 to 100 percent of its surface cut by gullies. It is so dissected that, except for small patches and narrow strips, the soils have been destroyed. The patches and strips are between the gullies and on the floor of wide gullies. Gullied land is gently sloping to moderately steep.

Gullied land, sandy (Gn).—This land is in areas that were areas of Ruston, Eustis, Lexington, Grenada, Loring, and Memphis soils. The gullies have cut into the sandy material of the Coastal Plain to a depth that ranges from 2 to 100 feet but is generally about 6 to 20 feet. The width of the gullies ranges from 2 to 100 feet but is generally 10 to 30 feet. This land is scattered throughout the county but is more extensive in the eastern part. From 10 to 100 percent of the surface is covered by gullies, most of which cannot be crossed by farm machinery. Between the gullies, most of the original surface soil and much of the subsoil have been removed by sheet erosion.

This land is very extensive. Nearly all areas have been cleared, but about 50 percent of the total acreage is now wooded. Some areas have been planted to pines, and others have reseeded naturally to hardwoods, chiefly oak. About 45 percent of the total acreage is idle, and about 5 percent is in unimproved pasture. Most areas are best suited to pine trees, kudzu, or some other plant that will help to control erosion. Reclaiming this land, even for pasture, is very expensive and probably not feasible. (Capability unit VIIe-1; woodland suitability group 8)

Gullied land, silty (Gs).—This land is in areas that were areas of Memphis, Loring, and Grenada soils. Most of these areas are in the western two-thirds of the county. The gullies are mostly in loess, but some have cut into the underlying sands and clays.

The gullies range from 2 to 20 feet in depth and from about 2 to 30 feet in width. From 10 to 100 percent of the surface is covered by gullies, most of which cannot be crossed by farm machinery. Between the gullies, most of the original surface soil and much of the subsoil have been removed by sheet erosion.

Gullied land, silty, is extensive. The entire acreage has been cleared, but about 20 percent of this has reseeded naturally to trees. Some areas have been planted to pine. About 50 percent of this land is idle, and about 30 percent is wild pasture. In a few areas the gully floors and soils between the gullies have been planted to row crops. This land is probably best suited to pine, but some of it could be reclaimed and seeded to pasture. The sandier areas are not suitable for reclamation. (Capability unit VIIe-1; woodland suitability group 8)

Henry Series

In the Henry series are deep, poorly drained, acid soils on uplands. These soils generally have a fragipan at a depth of about 20 inches, but in a few places the pan is only faint or is missing. These soils are generally level to gently sloping and, in some places, are in depressions.

Henry soils have a brown or grayish-brown, silty surface layer, about 6 inches thick. The subsoil is dominantly gray and overlies sandy or clayey material of the Coastal Plain. These soils are low in plant nutrients, particularly potassium. Except in areas where material has washed

in from other soils, the content of organic matter is very low.

The Henry soils are extensive throughout Fayette County, but most large areas are in the western two-thirds. Henry soils are on flats adjacent to the Memphis, Loring, Grenada, and Calloway soils and are more poorly drained than those soils. Cleared areas are used mainly for pasture, hay, soybeans, and sorghum.

Henry silt loam (He).—This is a deep, poorly drained, gray soil that has a fragipan in most places. It is on uplands.

Soil profile:

A_p—0 to 6 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; very friable; many concretions.

A_{2g}—6 to 18 inches, mottled light brownish-gray (2.5Y 6/2) and pale-brown (10YR 6/3) silt loam; weak, fine, subangular blocky structure; very friable; many concretions.

B_{2m1}—18 to 28 inches, gray (5Y 5/1) silty clay loam with many coarse mottles of yellowish brown (10YR 5/6) and olive gray (5Y 5/2); weak, medium, blocky structure; firm when crushed, compact and brittle in place; dark concretions.

B_{2m2}—28 to 41 inches, grayish-brown (2.5Y 5/2) silt loam mottled with dark brown (10YR 3/3) and light gray 2.5Y 7/2); weak, medium, blocky structure; friable to firm when crushed, compact and brittle in place.

C_{g1}—41 to 58 inches, mottled light brownish-gray (2.5Y 6/2), brown (10YR 5/3), and light-gray (2.5Y 7/2) silt loam; much concretionary material; massive (structureless); friable, slightly compact.

C_{g2}—58 to 72 inches +, brown to dark-brown (7.5YR 4/4) silt loam with many medium mottles of light brownish gray (2.5Y 6/2); massive (structureless); friable to firm; sand and clay of the Coastal Plain at about 95 inches.

The thickness of the surface layer depends on the amount of erosion or deposition and ranges from 5 to 12 inches.

Runoff is slow to very slow, and some areas are ponded. Permeability is moderate to slow in the surface soil and is very slow in the subsoil. The available water is low in summer and is excessive in winter and spring. The natural fertility is low.

This soil is extensive in Fayette County. There are about equal acreages in row crops, in pasture and hay, in trees, and in idle areas. Although many areas are used for soybeans, sorghum, and even cotton and corn, row crops do not grow well in very wet or very dry years. Tall fescue, annual lespedeza, and ladino clover are fairly well suited pasture plants. Frequent, heavy applications of fertilizer and lime are needed for all crops. Some areas require drainage or the diversion of surface water. (Capability group IVw 1; woodland suitability group 3)

Henry silt loam, overwash (Ho).—This soil is on uplands and terraces. It consists of recently deposited sediments, 8 to 20 inches thick, and underlying poorly drained, silty material. These sediments were washed from adjacent slopes. In most places there is a pan within 30 inches of the surface. This soil is generally in circular areas at the head of long, narrow bottoms. In most places it is surrounded by Calloway soils.

Runoff is slow. In winter and early in spring a perched water table is at or near the surface. Flooding is not frequent, but some areas are ponded by seepage and runoff from nearby slopes. Permeability is moderately slow in the surface layer and moderately slow to very slow in the subsoil. The available water capacity ranges from high to low but is generally high. Tilth depends mainly on the moisture content and is generally fair to good.

About three-fourths of the total acreage of this soil has been cleared and is used for crops and pasture. Except for some idle areas, the rest is in hardwoods. The main crops are cotton, corn, lespedeza, and sorghum. Flooding is infrequent, but runoff from adjacent slopes often delays planting and damages crops. Good management includes the removal of excess water and frequent applications of lime and fertilizer. (Capability unit IVw–1; woodland suitability group 3)

Henry silt loam, terrace (Ht).—This is a poorly drained, gray soil in loess that is underlain by loose sand at about 6 to 8 feet. The water table is at an average depth of 7 feet.

A_p—0 to 6 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; many concretions.

A_{2g}—6 to 20 inches, light brownish-gray (10YR 6/2) silt loam with few mottles of light gray (2.5Y 7/2) and yellowish brown (10YR 5/4); weak, fine and medium, subangular blocky structure; very friable; many concretions.

B_{2m1}—20 to 30 inches, gray (2.5Y 6/1) silty clay loam; weak, medium and coarse, blocky structure; firm when crushed, compact and brittle in place; many concretions.

B_{2m2}—30 to 40 inches, mottled light-gray (2.5Y 7/2), grayish-brown (10YR 5/2), and dark-brown (10YR 3/2) silt loam or silty clay loam; weak, medium, subangular blocky structure; firm when crushed, compact and brittle in place.

C_g—40 to 70 inches, mottled light brownish-gray (2.5Y 6/2), brown (10YR 5/3), and light-gray (2.5Y 7/1) silt loam grading to sandy material in the lower part; massive (structureless).

D_u—70 inches +, loose sand; water table generally at a depth of about 7 feet.

The thickness of the surface layer depends mainly on the amount of sediment deposited and ranges from 5 to 12 inches. Generally, all layers of the subsoil are compact in place, and most layers have platy structure. Consistence ranges from friable to extremely firm in the finest part of the subsoil.

Runoff is slow to very slow, and water ponds in some areas. Permeability is moderate to slow in the surface soil and is slow in the subsoil. The soil is ordinarily wet in winter and early in spring, but it dries out late in summer. Tilth is generally fair to poor.

More than half of this soil is cleared and used for row crops and pasture. About one-fifth is in hardwoods, and the rest is idle.

Suitable crops are soybeans and sorghum. Some farmers plant cotton, which produces fair yields in years of good weather. Corn generally is injured by drought late in summer. If they are not wet, large fields can be worked with heavy machinery. Frequent, large applications of lime and fertilizer are needed for high yields. Some fields require surface drainage. (Capability unit IVw–1; woodland suitability group 3)

Lexington Series

The Lexington series consists of deep, well-drained, nearly level to strongly sloping soils that are on narrow ridgetops and side slopes that range from 2 to 12 percent. These soils are formed in loess that is less than 42 inches thick and is underlain by sandy material of the Coastal Plain. They are strongly acid. The surface layer is

brown silt loam, and the subsoil is reddish-brown to yellowish-red silty clay loam.

Lexington soils are mainly in the eastern part of the county in an area that generally is more dissected than the rest of the county. They occur with the Ruston and Memphis soils. The Lexington soils are siltier in the upper layer than the Ruston soils and are in thinner loess than the Memphis soils.

These soils are moderately high in plant nutrients, particularly potassium and phosphorus, but they respond well to additions of fertilizer. In cultivated fields the content of organic matter is low.

Lexington soils developed under a hardwood forest. Most of the larger areas have been cleared and cropped, but many small areas are surrounded by areas of less desirable soils and have not been cropped.

Lexington silt loam, 2 to 5 percent slopes (LbB).—This is a well-drained soil in 2 to 4 feet of loess on ridgetops and side slopes. It is underlain by sands and clays of the Coastal plain.

Soil profile:

A_p—0 to 6 inches, brown (10YR 4/3) silt loam; weak, fine, crumb structure; friable.

B_{21}—6 to 12 inches, brown to dark-brown (7.5YR 4/4) silty clay loam; weak, medium, subangular blocky structure; firm.

B_{22}—12 to 32 inches, reddish-brown (5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; firm.

C_1—32 to 40 inches, brown to dark-brown (7.5YR 4/4) silt loam or loam; weak, medium, subangular blocky structure; friable.

D—40 to 60 inches +, brown to dark-brown (7.5YR 4/4) loam; very weak, medium, subangular blocky structure; compact in place, very friable when crushed; grades to reddish-yellow, loose sand at 60 inches.

The loess in which this soil formed ranges from 12 to 42 inches in thickness; the average thickness is about 30 inches. Included with this soil on the more nearly level parts of hilltops are small areas of loess that are thicker than 42 inches.

Permeability is moderate in the surface layer and in the subsoil. The available water capacity is high, natural fertility is moderately high, and the content of organic matter is moderately low. Tilth is generally good.

Most of this soil has been cleared and cropped, mainly to cotton. Areas that have not been cleared are in cutover hardwoods, mainly oak. This soil is suited to crops common in the county, but because it is in small tracts, the use of heavy equipment is limited. (Capability unit IIe–1; woodland suitability group 1)

Lexington silt loam, 5 to 8 percent slopes (LbC).—This soil is more sloping but is less eroded than the Lexington silt loam, 2 to 5 percent slopes, eroded, and has a slightly thicker and more uniform surface layer.

Permeability is moderate in the surface layer and in the subsoil. The available water capacity is high to moderate. The content of organic matter is moderately low, and natural fertility is moderately high. Tilth is generally good.

This soil is in small areas. Most areas are in hardwoods that have been cut over or burned over several times. This soil is suitable for cultivation of crops common in the county, but it is adjacent to soils that are less suitable. Although natural fertility is moderately high, this soil responds well to additions of fertilizer. (Capability unit IIIe–1; woodland suitability group 1)

Lexington silt loam, 8 to 12 percent slopes (LbD).—This soil is generally on short slopes adjacent to less sloping Lexington soils. The loess is thinner than it is in less sloping soils. However, this soil is not eroded, and its surface layer is thick.

Runoff is medium to rapid. The permeability and the available water capacity are moderate. Natural fertility is moderately high, and the content of organic matter is moderately low. Tilth is generally good.

Almost all of this soil is in cutover hardwoods, dominantly oak. If it is cleared, this soil is susceptible to severe erosion and, therefore, is not suitable for frequent cultivation. But the soil responds well to good management and is suited to the crops commonly grown in the county. (Capability unit IVe–1; woodland suitability group 1)

Lexington silty clay loam, 2 to 5 percent slopes, severely eroded (LcB3).—The plow layer of this severely eroded soil is mostly brown, silty clay loam subsoil material. Only a few spots of the original silt loam surface soil remain.

Permeability is moderate in the plow layer and in the subsoil. The available water capacity is moderate, natural fertility is moderately high, and the content of organic matter is low. Tilth is generally good.

All of this soil has been cleared and cropped, mainly to cotton and corn. The soil is suited to crops and pasture plants commonly grown, but the risk of further erosion limits cultivation to only occasional cropping. This soil is easy to work, and it responds well to good management. (Capability unit IIIe–1; woodland suitability group 1)

Lexington silty clay loam, 5 to 8 percent slopes, severely eroded (LcC3).—This soil is more sloping and more severely eroded than Lexington silt loam, 2 to 5 percent slopes. The plow layer is subsoil material mixed with remnants of the original surface soil and is dominantly brown silty clay loam.

Runoff is moderate to rapid. The permeability of the plow layer and the subsoil is moderate. The available water capacity is moderate, and the content of organic matter is low. Tilth is generally good to fair.

All of this inextensive soil has been cleared and cropped. About one-half of the acreage is now idle, about one-fourth has been replanted to trees, and the rest is used for crops and pasture.

This soil is probably best suited to pasture, but it responds well to good management and will produce good yields of common crops. Row crops should be alternated with close-growing crops that are grown for long periods. Contour tillage and other practices should be used to control erosion. (Capability unit IVe–1; woodland suitability group 1)

Lexington silty clay loam, 8 to 12 percent slopes, severely eroded (LcD3).—This severely eroded soil is on short side slopes and is near less sloping Lexington soils, which are on ridgetops. The plow layer is fine textured because much of the original surface layer has been removed by erosion.

Runoff is rapid, permeability is moderate, and the available water capacity is moderate to low. Natural fertility is moderate, and the content of organic matter is very low. Tilth is generally fair.

About half of this soil is in pasture. The rest has been planted to pines, has reseeded to scrub hardwoods, or is

idle. Because the risk of erosion is high and the response to good management is only moderate, this soil should be used mainly for pasture or for trees. (Capability unit VIe–1; woodland suitability group 1)

Lexington-Ruston complex, 8 to 12 percent slopes (LeD). Lexington soils and Ruston soils have been mapped together in this mapping unit because they are so intermingled that it is impractical to map them separately. The surface soil of these soils ranges from silt loam in the Lexington soils to fine sandy loam in the Ruston soils. The subsoil ranges from silty clay loam in the Lexington soils to sandy clay loam in the Ruston soils.

These soils are on hillsides throughout the county but are mostly in the eastern part. Each soil makes up about 50 percent of the total acreage, but the percentage varies from place to place.

A typical Lexington soil has been described, and a typical Ruston soil is described later in this report.

Runoff is moderate to rapid on these soils. Permeability ranges from moderate to rapid in the surface soil and is moderate in the subsoil. The available water capacity is medium. Natural fertility is moderate, and the content of organic matter is moderately low. Tilth is generally fair to good.

Almost all of the acreage is in cutover hardwoods, dominantly oak. If these soils are cleared, severe erosion is likely. Pasture is probably the best use. (Capability unit IVe–1; woodland suitability group 7)

Lexington-Ruston complex, 8 to 12 percent slopes, severely eroded (LeD3).—Lexington soils and Ruston soils have been mapped together in this mapping unit. In most places the plow layer of these soils is subsoil material mixed with remnants of the original surface soil. The plow layer ranges from silty clay loam in the Lexington soils to sandy clay loam in the Ruston soils.

Runoff is rapid. The permeability is moderate to rapid in the plow layer and is moderate below it. The available water capacity is moderate to low. Natural fertility is moderate to moderately low, and the content of organic matter is very low. Tilth is generally fair.

Most areas of these soils have been cleared and cropped, but many fields have been abandoned and have reseeded to hardwoods. A few areas have been replanted to trees, mostly pine and locust. Because they erode rapidly if cultivated, the soils should probably be used only for pasture or trees. (Capability unit VIe–1; woodland suitability group 7)

Lexington-Ruston complex, 12 to 30 percent slopes (LeF). Lexington soils and Ruston soils have been mapped together in this mapping unit. These soils are on moderately steep and steep hillsides and are adjacent to silty soils on the ridgetops. They occur together throughout the county but are mostly in the eastern part. Steep areas of Ruston soils are more extensive in this mapping unit than are less sloping areas.

Runoff is rapid. Permeability of the surface layer ranges from moderate in the Lexington soils to rapid in the Ruston soils. The subsoil of each is moderately permeable. The available water capacity of these soils is moderate to low. Natural fertility and the content of organic matter are moderately low, and tilth is generally fair.

These soils have a large total acreage, most of which is in cutover hardwoods, dominantly oak. Because they are moderately steep to steep and erode readily, these soils probably should remain in trees. (Capability unit VIIe–1; woodland suitability group 7)

Lexington-Ruston complex, 12 to 30 percent slopes, severely eroded (LeF3).—Lexington soils and Ruston soils have been mapped together in this mapping unit. In most places the plow layer of these soils is subsoil material mixed with remnants of the original surface soil. The plow layer ranges from silty clay loam in the Lexington soils to loamy fine sand in the Ruston soils. Generally, steep areas of Ruston soils are more extensive in this mapping unit than are less sloping areas.

Runoff is rapid to very rapid. Permeability ranges from moderate to rapid, and the available water capacity is low. Natural fertility is moderately low to low, the content of organic matter is very low, and tilth is generally poor.

Almost all areas of these soils have been cleared and cropped, but many fields are now idle or have reseeded to hardwoods. Some fields have been planted to pine and locust trees, and a few are cropped or are in unimproved pastures. Because further erosion is likely in cultivated fields, most areas of these soils are probably best suited to trees. (Capability unit VIIe–1; woodland suitability group 7)

Lexington-Ruston-Gullied land complex, 8 to 12 percent slopes (LfD).—Lexington soils, Ruston soils, and Gullied land have been mapped together in this mapping unit. They have had almost all of the original surface soil and part of the subsoil removed by erosion. Many shallow gullies have cut through the subsoil, and in places there is an occasional deep gully. Consequently, the surface is uneven.

Runoff is rapid. The available water capacity is low. Natural fertility is moderately low, the content of organic matter is very low, and tilth is generally poor to very poor.

This is a small mapping unit. It has been cleared and cropped, but most areas are now idle or are in unimproved pasture consisting mainly of native grasses and volunteer annual lespedeza. Because of the very severe erosion and the danger of further erosion, forestry is probably the best use. (Capability unit VIe–1; woodland suitability group 7)

Lexington-Ruston-Gullied land complex, 12 to 30 percent slopes (LfF).—Lexington soils, Ruston soils, and Gullied land have been mapped together in this mapping unit. They have had almost all of the original surface soil and part of the subsoil removed by erosion. The surface is uneven because many shallow gullies have cut through the subsoil into the underlying sandy material. Exposed at the surface are yellowish-red, brown, and reddish-brown colors. The plow layer varies widely in texture but is dominantly silt loam and loamy fine sand, and there are patches that have a silty clay loam and sandy clay loam surface layer. Generally, steep areas of Ruston soils are more extensive than are less sloping areas. Included in this unit are very severely eroded areas of Eustis soils.

Runoff is rapid to very rapid. Permeability ranges from moderate to rapid, and the available water capacity is low to very low. Natural fertility is moderately low to low, the content of organic matter is very low, and tilth is generally poor to very poor.

This is an extensive mapping unit. Almost all areas have been cleared and cropped, but only a few fields are now cropped. About half the acreage is idle or is in unimproved pasture. Many areas have been planted to pines or have reseeded to native scrub hardwoods. Because the erosion hazard is very high, forestry is probably the best use. (Capability unit VIIe-1; woodland suitability group 7)

Loring Series

In the Loring series are deep, medium acid to strongly acid, well drained to moderately well drained soils on uplands. These soils formed in thick loess on level to moderately steep, broad ridgetops and side slopes. The surface soil is brown silt loam, and the subsoil is reddish-brown to strong-brown silty clay loam. In some places a weak fragipan and mottling occur in the lower subsoil. The loess in which these soils developed is 3½ to 12 feet thick, and it overlies sandy or clayey materials of the Coastal Plain.

The Loring soils are extensive in Fayette County and are adjacent to Memphis, Grenada, Calloway, and Henry soils. Loring soils are not so well drained as Memphis soils, which do not have even a very weak pan. They are better drained than Grenada soils, in which the pan is strongly developed.

These soils contain a moderate amount of potassium and a small amount of phosphorus. In most areas the content of organic matter is low.

The native vegetation consisted of hardwoods, dominantly oak, poplar, gum, and hickory. Almost all areas have been cleared and cultivated. Loring soils are suited to all crops common in the area.

Loring silt loam, 2 to 5 percent slopes (LoB).—This is a moderately well drained soil formed in deep loess. In some places it has a weak fragipan at 30 to 36 inches.

Soil profile:

A_p—0 to 5 inches, brown to dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable.

B_{21}—5 to 10 inches, brown (7.5YR 4/4) light silty clay loam; weak, medium, subangular blocky structure; friable.

B_{22}—10 to 17 inches, brown to dark-brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable to firm.

B_3—17 to 30 inches, brown (7.5YR 4/4) silt loam; weak, medium, subangular blocky structure; friable.

B_{3m1}—30 to 36 inches, mottled pale-brown (10YR 6/3), dark-brown (7.5YR 4/4), and yellowish brown (10YR 5/6) silt loam; weak, coarse, blocky structure; friable when crushed, slightly compact in place.

B_{3m2}—36 to 48 inches, dark-brown (7.5YR 4/4) silt loam with many coarse mottles of light gray (2.5Y 7/2); weak, coarse, blocky structure; friable when crushed, compact and brittle in place.

C—48 to 60 inches +, dark-brown (7.5YR 4/4) silt loam with many, coarse, prominent mottles of light gray (2.5Y 7/2); friable; massive (structureless); sandy material of the Coastal Plain is at 96 inches.

The surface layer ranges from 4 to 8 inches in thickness. The weak pan is 3 or 4 inches to about 1½ feet thick. In some areas the pan does not occur, but the lower subsoil is mottled.

Runoff is moderate to slow. The permeability is moderate in the surface layer and in the subsoil. The available water capacity is moderate, and tilth is generally good.

Most of this soil has been cleared and cultivated. About 45 percent is used for row crops, 35 percent for pasture, 15 percent is idle, and the rest is in trees. The main crops are cotton, corn, soybeans, cowpeas, and sorghum. Pasture plants are lespedeza, bermudagrass, sericea lespedeza, tall fescue, and clover.

This soil is suited to all crops common in the area. It is easy to work and responds well to fertilizer. It is suitable for frequent but not continuous cultivation. (Capability unit IIe-1; woodland suitability group 1)

Loring silt loam, 0 to 2 percent slopes (LoA).—The surface of this soil is a little thicker and more uniform than that of Loring silt loam, 2 to 5 percent slopes, severely eroded, and a little higher in organic matter and generally in natural fertility. Included with this soil are a few moderately eroded patches.

Runoff is slow, and there is no erosion hazard or only a slight one. Permeability is moderate in the surface layer and is moderate to slow in the subsoil. The available water capacity is high, and tilth is generally very good to excellent.

About 65 percent of this soil is used for row crops, and 30 percent for pasture. The rest is mostly in small patches of woods.

This soil can be used intensively if lime and fertilizer are added at appropriate rates. It is suited to the crops commonly grown in the county and, if well managed, produces high yields. (Capability unit I-1; woodland suitability group 1)

Loring silt loam, 2 to 5 percent slopes, severely eroded (LoB3).—This soil has lost almost all of its original surface soil through erosion, and the plow layer is mainly subsoil material that is finer textured than the original surface soil. The plow layer is brown to dark-brown silt loam but in included areas ranges from silt loam to silty clay loam.

Runoff is moderate. The permeability is moderate in the plow layer and is moderate to slow in the subsoil. The available water capacity is moderate to high. The content of organic matter is very low, and natural fertility is moderate in most places. Tilth is generally good.

About 10 percent of the total acreage is idle, and the rest is in about equal acreages of crops and pasture. This soil is suited to all crops common in the area. Row crops can be grown only in a long rotation that is in close-growing crops most of the time. Though this soil is severely eroded, it responds well to management. It produces medium to high yields if it is adequately fertilized and otherwise well managed. (Capability unit IIIe-1; woodland suitability group 1)

Loring silt loam, 5 to 8 percent slopes (LoC).—This soil is generally adjacent to soils that are moderately steep or otherwise are not suitable for cultivation. The surface layer of this soil is a little thicker and more uniform than that in Loring silt loam, 2 to 5 percent slopes.

Runoff is moderate, and the erosion hazard is moderate to high in cleared areas. Permeability is moderate in the surface soil and moderate to slow in the subsoil. The available water capacity is moderate, natural fertility is moderately high, and tilth is generally good.

Most all of this soil is in hardwoods. Areas that are practical to clear are suited to all crops common in the

county, but they can be cultivated only occasionally, and they require practices to control erosion. This soil responds well to good management and produces medium to high yields. (Capability unit IIIe-1; woodland suitability group 1)

Loring silt loam, 5 to 8 percent slopes, severely eroded (LoC3).—This sloping soil is adjacent to less sloping Memphis and Loring soils in most places. The plow layer is finer textured than that in Loring silt loam, 2 to 5 percent slopes, because much of the original surface soil has been lost through erosion.

Runoff is moderate to rapid, and the risk of erosion is high. Permeability is moderate in the plow layer and moderate to slow in the subsoil. The available water capacity is moderate to low. Natural fertility is moderate, the content of organic matter is very low, and tilth is generally good.

This soil has been cleared and cropped. About half is now idle, and the rest is used for crops and pasture. This soil is suited to many kinds of crops. If it is well managed and a large amount of fertilizer is applied, this soil can be cultivated and will produce fair yields. Because further erosion is likely on cultivated fields, row crops should be grown only in a long rotation that is in close growing crops most of the time. This soil is easy to work, and it responds well to good management. (Capability unit IIIe-1; woodland suitability group 1)

Loring silt loam, 8 to 12 percent slopes (LoD).—The surface layer of this soil is 6 to 8 inches thick. It is thicker and more uniform than the surface layer in Loring silt loam, 2 to 5 percent slopes. This strongly sloping soil is adjacent to the less sloping Memphis, Loring, and Grenada soils.

Runoff is moderate to high. Permeability is moderate in the surface soil and is moderate to slow in the subsoil. The available water capacity is moderate to low, and natural fertility is moderate. Tilth is generally good to fair.

This soil is mostly in hardwoods. If it is cleared, practices are needed to control erosion. All common crops can be grown and will produce medium yields if this soil is well managed. The response to management is fair to good. (Capability unit IVe-1; woodland suitability group 1)

Loring silt loam, 8 to 12 percent slopes, severely eroded (LoD3).—This strongly sloping soil is more eroded than Loring silt loam, 2 to 5 percent slopes, and has a finer textured plow layer that consists mostly of subsoil material. This soil is generally adjacent to the less sloping Memphis, Loring, and Grenada soils, which are on broad ridgetops.

Runoff is rapid, and the erosion hazard is high. Permeability is moderate in the plow layer and is moderate to slow in the subsoil. The available water capacity is moderate to low. Natural fertility is moderately low, and the organic-matter content is very low. Tilth is generally fair.

All areas of this soil have been cleared and cultivated, but they are now used mostly for pasture or are idle. If it is cultivated, this soil requires intensive practices to control erosion. The soil is easy to work and responds well to good management. (Capability unit IVe-1; woodland suitability group 1)

Loring silt loam, 12 to 20 percent slopes (LoE).—This soil is steeper than Loring silt loam, 2 to 5 percent slopes, but is otherwise similar. It is on hillsides and generally is adjacent to the Memphis, Loring, or Grenada soils that are on ridgetops.

Runoff is rapid, and the erosion hazard is high in cleared areas. Permeability is moderate in the surface layer and moderate to slow in the subsoil. The available water capacity is moderate to low.

Most of this soil is in hardwoods. If it is cleared, it is suited for pasture but needs intensive practices to control erosion. (Capability unit VIe-1; woodland suitability group 1)

Loring silt loam, 12 to 20 percent slopes, severely eroded (LoE3).—This soil is on hillsides adjacent to the less sloping Memphis, Loring, and Grenada soils. It is severely eroded, and the plow layer is dominantly heavy silt loam.

Runoff is rapid or very rapid, and the erosion hazard is very high. Permeability is moderate in the plow layer and slow to moderate in the subsoil. The available water capacity is low. Natural fertility is moderately low, and content of organic matter is very low. Tilth is generally poor.

This soil has been cleared and cropped, but most areas are now in unimproved pasture or are idle. The soil is suited to pasture, but intensive management is needed to establish and maintain the pasture. (Capability unit VIe-1; woodland suitability group 1)

Loring-Gullied land complex, 5 to 12 percent slopes (LgD).—Almost all of the original surface soil and much of the subsoil of this complex have been removed by erosion. Many gullies have cut into the layer under the subsoil. Erosion is greater than it is on Loring silt loam, 2 to 5 percent slopes. The surface layer is dominantly silt loam, although there are patches with a silty clay loam surface soil.

Runoff is rapid, and the erosion hazard is very high. Permeability is moderate in the plow layer and is moderate to slow in the subsoil. The available water capacity is low. Soils of this complex are moderately low in natural fertility and very low in content of organic matter. Tilth is poor to very poor.

All areas of this soil complex have been cleared and cultivated, but most fields are now in unimproved pasture. Even for pasture, intensive practices are needed to control erosion. Some fields could be cultivated in a long cropping system if row crops were grown only infrequently. Land smoothing, however, would ordinarily be required before a good seedbed could be prepared. (Capability unit IVe-1; woodland suitability group 1)

Loring-Gullied land complex, 12 to 20 percent slopes (LgE).—The soils in this complex are adjacent to the less sloping Memphis, Loring, and Grenada soils. An uneven surface is caused by many shallow gullies. In most places all of the original surface layer and some of the subsoil have been removed by erosion.

Runoff is rapid or very rapid, and the erosion hazard is very high. Permeability of the surface layer and subsoil is moderate to slow, and the available water capacity is low. Natural fertility is moderately low, and organic-matter content is very low. Tilth is generally poor to very poor.

All areas of this soil complex have been cleared and cultivated, but a few fields have been replanted to trees. Most fields are in unimproved pasture or are idle.

All areas of this complex can be used for pasture if practices to control erosion are intensive. The response to management is only fair. (Capability unit VIe-1; woodland suitability group 1)

Memphis Series

The Memphis series consists of well-drained, level to moderately steep, silty soils on broad ridgetops and side slopes. These soils formed in loess that is 3½ to 15 feet thick and overlies sands and clays of the Coastal Plain. These soils are medium acid or strongly acid. The surface layer is brown silt loam, and the subsoil is brown to reddish-brown silt loam or silty clay loam.

Memphis soils are extensive and occur throughout the county. They are well drained members of the catena that includes moderately well drained Grenada soils and poorly drained Henry soils. Memphis soils are similar to Loring soils but do not have a mottled lower subsoil like that in the Loring soils.

Memphis soils contain a moderate amount of plant nutrients, particularly potassium. They respond well to additions of fertilizer. They have developed under a hardwood forest, but most areas have been cleared and cultivated. These soils are suited to all crops common in the area.

Memphis silt loam, 2 to 5 percent slopes (MeB).—This is a well-drained soil formed in thick loess on fairly broad, gently sloping ridgetops.

Soil profile:

A_p—0 to 5 inches, brown to dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable.

B_{21}—5 to 9 inches, brown to dark-brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable to firm.

B_{22}—9 to 20 inches, brown to dark-brown (7.5YR 4/4) silty clay loam with many clay films, some of which are reddish brown (5YR 4/4); strong, medium, subangular blocky structure; firm.

B_3—20 to 34 inches, brown to dark-brown (7.5YR 4/4) silt loam with a few reddish-brown (5YR 4/4) and black (7.5YR 2/0) coatings on peds; weak, medium, subangular blocky structure; firm.

C_1—34 to 53 inches, brown to dark-brown (7.5YR 4/4) silt loam with a few streaks of very pale brown (10YR 7/3); weak, coarse, blocky structure; friable.

C_2—53 to 108 inches, reddish-brown (5YR 4/4) to brown (7.5YR 4/4) silt loam with few medium mottles or streaks of light brownish gray (2.5Y 6/2); massive (structureless); friable when crushed, compact in place.

D—108 inches +, yellowish-red (5YR 4/6) silty clay loam with few, medium, distinct mottles of pale brown (10YR 6/3) in seams; massive (structureless); firm.

The surface layer ranges from 4 to 8 inches in thickness. Included with this soil are a few small, severely eroded patches.

This soil contains a moderately small amount of organic matter and is moderately high in natural fertility. Runoff is medium to slow, and the erosion hazard is moderate. Permeability of the surface layer and subsoil is moderate, and the available water capacity is high. The plow layer generally is in good tilth.

Almost all of this soil has been cropped, mainly to cotton. Much is now in cotton, although some fields are in other crops, pasture, and hay (fig. 5). Because it is gently sloping, is generally in good tilth, and has a high capacity for available moisture, this soil is suitable for cultivation. All crops common in the area can be grown, but adequate amounts of lime and fertilizer are required to keep yields high. (Capability unit IIe-1; woodland suitability group 1)

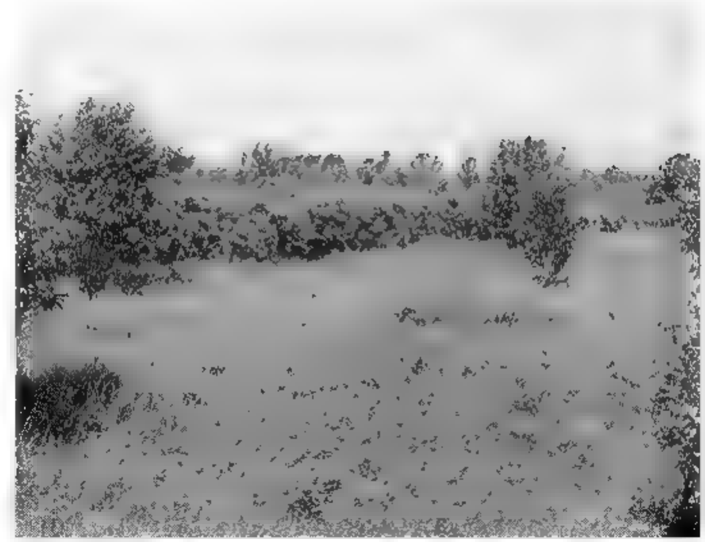

Figure 5.—**Crimson clover and small grain among young apple trees on Memphis soil. Note multiflora rose fence in background.**

Memphis silt loam, 0 to 2 percent slopes (MeA).—The surface layer of this soil is 6 to 10 inches thick. It is somewhat thicker than the surface layer of Memphis silt loam, 2 to 5 percent slopes, and contains slightly more organic matter. Included with this soil are a few small, moderately eroded, level areas.

Runoff is slow, and there is no erosion hazard or only a slight one. Permeability of the surface layer and the subsoil is moderate. The available water capacity is high, and fertility is moderately high. Tilth is generally very good to excellent.

Most areas of this soil are adjacent to areas of the more sloping Memphis soils. Almost all of this soil has been cultivated and is now in cotton, corn, and annual lespedeza grown for hay or pasture. This soil is suited to all crops common in the area and requires only ordinary management to control erosion. (Capability unit I-1; woodland suitability group 1)

Memphis silt loam, 5 to 8 percent slopes (MeC).—This soil is in the same general area as other Memphis soils. It is more sloping, less eroded, and has a more uniform surface layer than Memphis silt loam, 2 to 5 percent slopes, but otherwise is similar to that soil.

Runoff is moderate, and permeability of the surface layer and the subsoil is moderate. The available water capacity is high to moderate, and the organic-matter content is moderately low. Natural fertility is moderately high. If it is cleared, this soil generally has good tilth. The erosion hazard, however, is moderate to high.

Most areas of this soil are in trees, mainly hardwoods that have been cut over once or more. Most areas of this soil are small and are adjacent to areas of soils less suitable for cultivation. Cleared areas of this soil are suited to crops common in the area, but contour tillage, crop rotation, and other practices are needed to control erosion. This soil responds well to additions of fertilizer and pro-

duces high yields of many kinds of crops. (Capability unit IIIe–1; woodland suitability group 1)

Memphis silt loam, 8 to 12 percent slopes (MeD).—This soil is more strongly sloping than Memphis silt loam, 2 to 5 percent slopes, and has a more even and uniform surface layer. The surface layer is normally 7 or 8 inches thick.

Runoff is moderate to rapid. The permeability is moderate in the surface layer and in the subsoil, and the available water capacity is moderate. Organic-matter content is moderately low, and natural fertility is moderately high. Tilth is generally good.

Except for a few small patches that have been cleared recently, all areas of this soil are in woods. If it is cleared, this soil requires practices to control erosion. All common crops can be grown. The soil is easy to work and responds well to management. (Capability unit IVe–1; woodland suitability group 1)

Memphis silty clay loam, 2 to 5 percent slopes, severely eroded (MfB3). Because it has lost more than 75 percent of the original surface soil through erosion, this soil has a finer textured, redder plow layer than that of Memphis silt loam, 2 to 5 percent slopes.

Permeability is moderate in the surface soil and in the subsoil. Runoff is moderate, and the available water capacity is high to moderate. The soil is moderately high in natural fertility and contains a small amount of organic matter. Tilth is generally good, although it is less favorable than that of Memphis silt loam, 2 to 5 percent slopes.

All areas of this soil have been cleared and used for row crops, chiefly cotton. About 50 percent is now in row crops, about 10 percent is idle, and the rest is in pasture and hay, mainly annual lespedeza.

This soil is suited to all crops and pasture plants commonly grown, but it is likely to lose large amounts of soil material through erosion if it is cultivated intensively. It can be cultivated for row crops in a moderately long to long cropping system that is in close-growing crops most of the time. If this soil is well fertilized and is otherwise well managed, yields are medium to high. The response to management is good. (Capability unit IIIe–1; woodland suitability group 1)

Memphis silty clay loam, 5 to 8 percent slopes, severely eroded (MfC3).—This severely eroded soil is on stronger slopes than Memphis silt loam, 2 to 5 percent slopes. The plow layer is made up largely of subsoil material.

Runoff is moderate to rapid, and the hazard of erosion is high. Permeability is moderate in the surface layer and in the subsoil. The available water capacity is moderate. Organic matter content is low, and natural fertility is moderately high. Tilth is generally good.

This soil has been cleared and cultivated, mainly to cotton. Much of it is still row cropped or is used for pasture and hay. Some idle fields have grown up in bushes, briers, and native grasses. This soil is suited to crops common in the area, but yields are lower than those on less eroded Memphis soils. Contour tillage, crop rotations, and other practices are needed to control erosion. In some places stripcropping is needed. A high level of fertility may be established by adding lime and fertilizer as determined by soil tests. (Capability unit IIIe–1; woodland suitability group 1)

Memphis silty clay loam, 8 to 12 percent slopes, severely eroded (MfD3).—This soil is on stronger slopes than Memphis silt loam, 2 to 5 percent slopes, and is more severely eroded. The plow layer is made up mostly of silty clay loam subsoil material.

Runoff is rapid and permeability is moderate. The available moisture capacity is moderate to low. Organic-matter content is low, and natural fertility is moderate. Tilth is generally fair, and the erosion hazard is high.

All areas of this soil have been cleared and cultivated. Some are now cultivated, some are in pasture, and some are idle. All common crops are suited, but row crops should be grown only infrequently and then in a long rotation that is in close-growing crops most of the time. Yields of row crops will be low, and yields of close-growing crops will be high if large amounts of fertilizer are added. (Capability unit IVe–1; woodland suitability group 1)

Memphis-Gullied land complex, 5 to 12 percent slopes (MgD). Almost all of the original surface soil and much of the subsoil of this complex have been lost through erosion. Many gullies have cut into the layers under the subsoil. This mapping unit is on stronger slopes and is more eroded than Memphis silt loam, 2 to 5 percent slopes. The dominant texture is silt loam, although in some patches it is silty clay loam.

Runoff is rapid, and the erosion hazard is very high. Permeability is moderate, and capacity for available water is low. Natural fertility is moderate to moderately low, and organic matter content is very low. Tilth is generally poor to very poor.

This mapping unit has been cleared and row cropped, but most of the acreage is now idle or is in unimproved pasture. A few areas have been planted to yellow pine or black locust. Because further erosion is likely, this mapping unit is best suited to pasture. It can be used for crops in a long cropping system that is in close-growing crops most of the time. But land smoothing is ordinarily required before a suitable seedbed can be prepared. If the surface is smoothed and the unit is otherwise well managed, it is fairly productive. (Capability unit IVe–1; woodland suitability group 1)

Memphis-Gullied land complex, 12 to 20 percent slopes (MgE).—Memphis soils and Gullied land make up this mapping unit. In most places all of the original surface soil and much of the subsoil of these soils have been removed by erosion, and the surface is gullied and uneven.

Runoff is rapid to very rapid, and further erosion is likely. Permeability is moderate, and the available water capacity is low. Natural fertility is moderate, the content of organic matter is very low, and tilth is generally poor.

Most areas of this complex are now idle or in native pasture, but some areas have been planted to pines. The use of these soils is limited mainly to pasture or to trees because the soils are difficult to work and are extremely difficult to protect from erosion. (Capability unit VIe–1; woodland suitability group 1)

Ruston Series

The Ruston series consists of well-drained, moderately steep to steep, acid soils formed in sandy material of the Coastal Plain. The surface layer is yellowish-brown fine

sandy loam, and the subsoil is yellowish-red to red sandy clay loam.

The Ruston soils are on hillsides. These soils are adjacent to the silty Lexington soils, which are commonly on narrow ridgetops. In some places Eustis soils and Ruston soils are intermingled in an intricate pattern. Ruston soils generally are in the eastern part of the county in a highly dissected area that coincides roughly with the area of the Holly Springs geologic formation. This general area is known locally as District 15.

The natural vegetation is hardwoods, chiefly oak and hickory. About two-thirds of the total acreage is in woods, and the rest is idle or is in unimproved pasture. These soils are moderately low in natural fertility and generally are not suited to row crops.

Ruston sandy loam, 12 to 30 percent slopes (RoF).—This is a deep, well-drained, sandy soil on steep slopes.

Soil profile in a wooded area:

A_1—0 to 2 inches, very dark brown (10YR 2/2) sandy loam; much partly decomposed organic matter; weak, fine, granular structure; very friable.

A_2—2 to 14 inches, yellowish brown (10YR 5/4) sandy loam; weak, fine, granular structure; very friable.

A_3—14 to 27 inches, yellowish-brown (10YR 5/4) or yellowish-red (5YR 4/6) sandy loam; weak, fine and medium, subangular blocky structure; very friable.

B_2—27 to 38 inches, red (2.5YR 4/6) sandy clay loam; moderate, medium, subangular blocky structure; friable to firm.

B_3—38 to 50 inches, red (2.5YR 4/6) light sandy clay loam; weak, medium, subangular blocky structure; friable.

C—50 to 70 inches +, red (2.5YR 4/6) and very pale brown (10YR 7/3) loamy sand; loose to very friable.

The subsoil ranges from yellowish red to dark red in color and from sandy clay loam to sandy clay in texture.

Runoff is rapid. Permeability is rapid in the surface layer and moderate in the subsoil. The available water capacity is moderate to low. Tilth is generally fair. This soil is strongly acid and is moderately low in natural fertility.

The total acreage is fairly large. Almost all of it is in hardwoods, which is probably its best use. Where clearing is practical, however, this soil can be used for pasture. Response to pasture management is medium to low, and intensive practices are needed to control erosion. (Capability unit VIIe–1; woodland suitability group 7)

Ruston sandy clay loam, 12 to 30 percent slopes, severely eroded (RcF3).—The plow layer of this severely eroded soil contains more clay in most places than does that of Memphis silt loam, 2 to 5 percent slopes. Colors exposed at the surface range from yellowish brown to yellowish red. Included with this soil are areas with a sandy loam surface layer.

Runoff is rapid to very rapid, and the erosion hazard is high to very high. Permeability is moderate, and the available water capacity is low. Natural fertility is low, the organic-matter content is very low, and tilth is generally poor.

This soil has been cleared and cropped, but about half of it is now idle or is in unimproved pasture. The rest has been replanted to trees or has reseeded to native scrub trees. Because severe erosion is likely in cleared areas, this soil is probably best suited to trees. (Capability unit VIIe–1; woodland suitability group 7)

Ruston-Eustis complex, 12 to 30 percent slopes (ReF).—Ruston soils and Eustis soils have been mapped together in this mapping unit because they are so intermingled in a variable and intricate pattern that it is not feasible to map them separately. The surface layer ranges from fine sandy loam in the Ruston soils to sand in the Eustis soils. The subsoil ranges from sandy clay loam in Ruston soils to sand in Eustis soils.

The well-drained Ruston soils make up about 65 percent of the unit, and the excessively drained, very sandy Eustis soils about 35 percent. Most areas are in the eastern part of the county.

The profile of a Ruston soil has been described. The following describes a profile of Eustis sand in a wooded area.

A_0—½ inch to 0, black (10YR 2/1) partly decomposed organic matter.

A_{11}—0 to 4 inches, very dark brown (10YR 2/2) sand; weak, fine, granular and weak, medium, subangular blocky structure; very friable; high organic-matter content.

A_{12}—4 to 6 inches, dark-brown (7.5YR 3/2) sand; weak, fine and medium, subangular blocky structure; very friable.

B—6 to 17 inches, dark brown (7.5YR 4/4) to dark yellowish-brown (10YR 4/4) sand; weak, medium and coarse, subangular blocky structure; very friable.

C—17 to 48 inches +, brown (7.5YR 4/4) sand; loose; becomes lighter colored with increasing depth.

The surface layer ranges from very dark brown to grayish brown according to the content of organic matter. Normally this soil is medium acid to strongly acid. In some areas, however, the residue from burned-over woods makes the surface layer slightly alkaline.

Runoff is rapid, and permeability of the surface layer is rapid. Permeability of the subsoil of Ruston soils is moderate, and that of the subsoil of Eustis soils is very rapid. The available water capacity is low, and natural fertility is moderately low to low. Tilth is generally fair.

All areas of this soil are in cutover and burned-over woods, dominantly oak. They probably should remain in trees, but careful management is necessary for high yields of timber. (Capability unit VIIe–1; woodland suitability group 7)

Sandy Alluvial Land

Nearly level areas of sand or loamy sand that have been cleared and cropped make up this land type.

Sandy alluvial land (Sa).—This land type consists of nearly level areas in which the surface layer to a depth of 18 inches contains at least 8 inches of sand or loamy sand. In most places the sand is 2 or 3 feet thick and overlies the Vicksburg, Collins, Falaya, and Waverly soils.

Runoff from this land is slow. Permeability of the sandy overwash is rapid, but that of the underlying soil is slow to moderate. The available water capacity generally is very low. Natural fertility is very low, and organic-matter content is very low. Tilth is generally good.

Most areas have been cleared and cropped. Because it is generally in small areas surrounded by soils more suitable for cropping, about 75 percent of this soil is now cropped. The larger fields are mostly idle (fig. 6). This soil is too droughty for cultivated crops and is only fairly suitable for pasture. It is probably best suited to trees such as cottonwoods. (Capability unit VIIs–1; woodland suitability group 5)

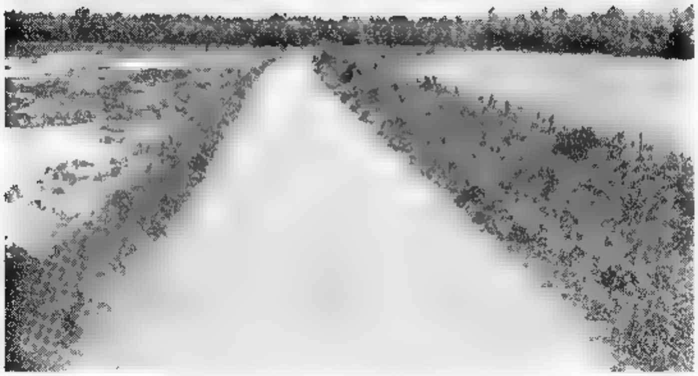

Figure 6.—Sand, washed from eroded soils upstream, has covered bottom at left. Bottom at right is protected by elevated roadbed and has not received sand.

Swamp

Swamp consists of areas that are under water most of the time.

Swamp (Sw).—Areas of Swamp are under water most or all of the time. Some areas dry up in summer but are not dry long enough for crops to grow. The standing water ranges from a few inches to 3 or 4 feet in depth. The soil is dominantly a gray silt loam but, in some places, is mixed with sandy material and organic matter.

A thin stand of cypress and willow is in most areas, and there are water-tolerant grasses in places. (Capability unit VIIw–1; woodland suitability group 6)

Vicksburg Series

In the Vicksburg series are well-drained soils consisting of material that was recently deposited on bottom lands. This recent alluvium is about 4 to 20 feet thick and overlies sandy material of the Coastal Plain. These soils are strongly acid.

The surface layer is brown or dark-brown silt loam to fine sandy loam. The subsoil is brown to reddish brown silt loam to fine sandy loam to a depth of 42 inches. Below that depth the subsoil may be mottled brown and gray.

These soils are in small areas on bottoms throughout the county. The soil material of the Vicksburg soils washed mainly from the Memphis and Loring soils. Vicksburg soils are well-drained members of the catena that includes the poorly drained Waverly soils and the moderately well drained Collins soils.

The content of organic matter and natural fertility are moderately high. Native vegetation is hardwoods, dominantly poplar, oak, hickory, and gum. These soils are suitable for intensive cultivation and are used for crops common in the area.

Vicksburg silt loam (Vk).—This is a well-drained, silty soil on nearly level bottom lands.

Soil profile:

A_p—0 to 8 inches, brown to dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable.

C_1—8 to 36 inches, brown to dark-brown (10YR 4/3) silt loam grading to loam in lower part; very weak, fine and medium, granular structure; friable.

C_2—36 inches +, brown (10YR 4/3) fine sandy loam with a few, fine, faint mottles of pale brown (10YR 6/3); very little structure; very friable.

The content of sand in the subsoil varies from place to place. In some places the subsoil contains very little sand, and in other places loamy sand may be in layers of the subsoil or mixed with the silty material. Some areas have very little sand to a depth of several feet. A slightly developed subsoil (B horizon) is present in some places.

Runoff is slow. Permeability is moderate, and available water capacity is very high. Generally, the water table in this soil is not so high as it is in the poorly drained soils on bottom lands.

Almost all of this soil is cleared and in row crops or pasture. A few small, idle areas are adjacent to soils that are less desirable for cultivation. This soil is suited to intensive use for all crops common in the area but is flooded occasionally in winter or spring. It responds to lime and fertilizer and is easy to work. (Capability unit I–2; woodland suitability group 4)

Vicksburg silt loam, local alluvium (Vu).—This soil, in most places, is at the head of drainageways. It is generally cut by one or more large, deep ditches or gullies. Slopes are generally slightly stronger than those of Vicksburg silt loam, and bottoms and drainageways are normally smaller. In other respects the two soils are similar.

Runoff is slow. In many places, however, the banks of ditches or gullies cave in. Permeability is moderate, and the available water capacity is very high. Tilth is generally very good.

Almost all of this soil is cleared and cropped. Cotton and corn are the main crops, and lespedeza is grown for pasture and hay. This soil is suitable for intensive use, but it is flooded occasionally. All crops common in the area can be grown. Frequent additions of lime and fertilizer are necessary for continuous high yields. (Capability unit I–2; woodland suitability group 4)

Vicksburg fine sandy loam (Vb).—This soil is mainly on small bottoms adjacent to the Lexington and Ruston soils on slopes. It is similar to Vicksburg silt loam but has a fine sandy loam surface soil and generally contains slightly more sand throughout the profile. It is not sandy enough, however, to appreciably lower the available water capacity or crop yields.

Runoff is slow. Permeability is moderate. The available water capacity is high to very high, although the water table is not so high as it is in more poorly drained soils. Natural fertility is moderately high to moderate, and tilth is generally good.

Most areas of this soil are cleared and used for row crops, mainly cotton and corn. Annual lespedeza is the chief hay and pasture crop. This soil can be used intensively for most all crops common in the area. Yields are fairly high if adequate amounts of lime and fertilizer are added. Floods are infrequent. (Capability unit I–2; woodland suitability group 4)

Vicksburg fine sandy loam, local alluvium (Vc).—This soil is on very small bottoms or at the head of drainageways in the same general area as other Vicksburg soils. It is similar to Vicksburg silt loam but has more sand throughout the profile, particularly in the surface layer.

Runoff is slow. Permeability is moderate. The available water capacity is high to very high, although the

water table is generally not so high as that in the more poorly drained soils on bottoms. Natural fertility is moderately high to moderate, and tilth is generally very good.

Most areas of this soil are cleared and in row crops or pasture, but a few areas are in hardwoods. The main row crops are cotton and corn, and the main hay and pasture crop is lespedeza. This soil can be used intensively. Ditches should be stabilized to prevent them from caving in. Yields are generally high if adequate amounts of lime and fertilizer are added. (Capability unit I 2; woodland suitability group 4)

Waverly Series

In the Waverly series are poorly drained, gray, acid soils on bottom lands mainly in the western two thirds of the county. Normally, these soils are near the Falaya soils, which are not so poorly drained.

Waverly soils consist of recent silty alluvium that is 12 inches to 20 feet thick and generally overlies older, poorly drained, silty material. In many places the recent alluvium over the older, poorly drained material is fairly thin.

These soils contain a moderate amount of plant nutrients but are generally low in potassium. Native vegetation is dominantly oak, gum, willow, sycamore, and cypress.

Waverly silt loam (Wv).—This is a poorly drained, gray soil on nearly level bottom lands.

Soil profile:

A_1—0 to 6 inches, brown (10YR 4/3) to grayish-brown (10YR 5/2) silt loam; weak, fine, granular structure; friable.

C_{1g}—6 to 18 inches, dark-gray (10YR 4/1) silt loam with many, coarse, prominent, yellowish-red (5YR 4/6) mottles; massive (structureless); friable.

C_{2g}—18 inches +, gray (2.5Y 6/1) silt loam with reddish-brown (5YR 5/4) and yellowish red (5YR 5/6) mottles; massive (structureless); friable.

All layers underlying the surface layer range from silt loam to silty clay loam. Included with this soil are areas with a silt to silty clay loam surface layer. Also included are a few areas of old, poorly drained Henry soils on second bottoms that have very little overwash.

Runoff is very slow, and permeability is moderately slow. The water table is at or near the surface all year.

About 40 percent of this extensive soil is used for row crops, 20 percent is used for pasture, and 35 percent is in trees, dominantly ash, willow, sycamore, gum, oak, and cypress. The rest is idle. The main row crops are soybeans and sorghum. Yields of cotton and corn are generally small because water is excessive; the entire crop is often ruined. Lespedeza is the chief hay and pasture crop, although a few fields are in fescue and clover. For good yields this soil needs to be drained (fig. 7) and adequately limed and fertilized. (Capability unit IVw–1; woodland suitability group 6)

Waverly fine sandy loam (Wa).—This soil is in the same general area as Waverly silt loam but has a more sandy surface layer than that soil and generally is more sandy throughout the profile.

Runoff is very slow. The water table is normally high, and flooding is frequent. Permeability is moderately slow, and natural fertility is moderate to low. Tilth depends mainly on the moisture content.

About half of this soil is in crops or pasture, and half is in trees or is idle. The main crops are soybeans and sorghum. Yields of cotton and corn are usually reduced by excess water, and sometimes the entire crop is ruined. Lespedeza is the chief hay and pasture crop.

Figure 7.—**Drainage ditch in poorly drained Waverly soil. Ditchbanks are effectively stabilized by kudzu.**

Because this soil must be protected against excess water before row crops can be grown, pasture or trees are probably the best use. (Capability unit IVw–1; woodland suitability group 6)

Use and Management of Soils

This section discusses the use and management of soils for crops and pasture, in engineering works, for wildlife, and as woodland.

Crops and Pastures

This subsection has three main parts. The first part explains capability grouping. In the second part, the soils of the county are placed in capability units and the use and management of these units are discussed. The third part consists of a table that lists estimated yields for each soil in the county at two levels of management.

Capability groups of soils

The capability classification is a grouping of soils that shows, in a general way, how suitable the soils are for most kinds of farming. It is a practical grouping based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment.

In this system all the kinds of soils are grouped at three levels, the capability class, subclass, and unit. Eight capability classes are in the broadest grouping and are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, shallow, or otherwise

limited that they do not produce worthwhile yields of crops, forage, or wood products. Fayette County has no soils in class V or class VIII.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes there can be as many as four subclasses. The subclass is indicated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* means that water in or on the soil will interfere with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony, and *c*, used in only some parts of the country, and not in Fayette County, indicates that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few or no limitations. Class V can contain, at the most, only subclasses *w*, *s*, and *c*, because the soils in it are susceptible to little or no erosion but have other limitations that limit their use largely to pasture, range, woodland, or wildlife.

Within the subclasses are the capability units, groups of soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping of soils for many statements about their management. Capability units are generally identified by numbers assigned locally, for example, IIe-1 or IIIe-2.

Soils are classified in capability classes, subclasses, and units according to the degree and kind of their permanent limitations; but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil; and without consideration of possible but unlikely major reclamation projects.

The eight classes in the capability system, and the subclasses and units in this county, are described in the list that follows.

Class I.—Soils that have few limitations that restrict their use.

- Unit I-1.—Deep, well-drained, nearly level soils that have a very friable surface layer and a friable or firm subsoil.
- Unit I-2.—Deep, well-drained soils that have a very friable surface layer and friable subsoil and are on bottom lands and foot slopes.
- Unit I-3.—Deep, well drained or moderately well drained soils on bottom lands and foot slopes in alluvium that washed from uplands.

Class II.—Soils that have some limitations that require moderate conservation practices, or that reduce the choice of plants.

Subclass IIe.—Soils subject to erosion if they are not protected.

- Unit IIe-1.—Deep or moderately deep, well-drained, gently sloping soils that have a friable or firm subsoil.
- Unit IIe-2.—Deep or moderately deep, gently sloping, moderately well drained soils that have a fragipan.

Subclass IIw.—Soils that have moderate limitations because of excess water.

- Unit IIw-1.—Nearly level, moderately well drained soils that have a fragipan.

Class III.—Soils that have severe limitations that reduce the choice of plants, or require special conservation practices, or both.

Subclass IIIe.—Soils subject to severe erosion if they are cultivated and not protected.

- Unit IIIe-1.—Gently sloping or sloping, deep and moderately deep, well-drained soils.
- Unit IIIe-2.—Gently sloping or sloping, deep and moderately deep, moderately well drained soils that have a fragipan.

Subclass IIIw.—Soils that have severe limitations because of excess water.

- Unit IIIw-1.—Level to gently sloping, somewhat poorly drained soils that have a fragipan.
- Unit IIIw-2.—Level to gently sloping, somewhat poorly drained soils on bottom lands.

Class IV.—Soils that have very severe limitations that restrict the choice of plants, or require careful management, or both.

Subclass IVe.—Soils subject to very severe erosion if they are cultivated and not protected.

- Unit IVe-1.—Sloping to strongly sloping, deep and moderately deep, well drained soils.
- Unit IVe-2.—Sloping to strongly sloping, deep and moderately deep, moderately well drained soils that have a fragipan.

Subclass IVw.—Soils that have very severe limitations because of excess water.

- Unit IVw-1.—Level to gently sloping, deep, poorly drained soils.

Class V.—Soils not likely to erode that have other limitations, impractical to remove without major reclamation, that limit their use largely to pasture or range, woodland, or wildlife food and cover. (None in Fayette County.)

Class VI.—Soils that have severe limitations that make them generally unsuitable for cultivation and that limit their use largely to pasture or range, woodland, or wildlife food and cover.

Subclass VIe.—Soils severely limited chiefly because of the erosion hazard if protective cover is not maintained.

- Unit VIe-1.—Deep and moderately deep, somewhat excessively drained to moderately well drained soils on sloping to moderately steep uplands and stream terraces.

Class VII.—Soils that have very severe limitations that make them unsuitable for cultivation without major reclamation, and that restrict their use largely to grazing, woodland, or wildlife.

Subclass VIIe.—Soils very severely limited, chiefly by risk of erosion if protective cover is not maintained.

- Unit VIIe-1.—Strongly sloping to steep, uneroded or gullied soils that are somewhat excessively drained to moderately well drained.

Subclass VIIs.—Soils that are very severely limited by low fertility, moisture capacity, or other soil features.

Unit VIIs-1.—Level to gently sloping, sandy soils on flood plains and in gully washouts.

Subclass VIIw.—Soils very severely limited by excess water.

Unit VIIw-1. -Level, very poorly drained soils on bottom lands and in swamp.

Class VIII.—Soils and landforms that have limitations that preclude their use, without major reclamation, for commercial production of plants; and restrict their use to recreation, wildlife, water supply, or esthetic purposes. (None in Fayette County.)

Capability units in Fayette County

In this subsection the soils of the county are placed in capability units and are described generally. Suggested for each unit are suitable uses and management practices. The soils in a capability unit have about the same limitations and risk of damage, need about the same management, and respond to similar management in about the same way.

CAPABILITY UNIT I-1

Capability unit I 1 consists of deep, well-drained, nearly level soils on uplands. The surface layer is very friable silt loam, and the subsoil is firm or friable silt loam to silty clay loam.

Permeability is moderate, and the capacity for supplying moisture is high. These soils are medium acid or strongly acid, moderately high in natural fertility, and particularly high in potassium. They generally are moderately low in organic-matter content. They are—

Memphis silt loam, 0 to 2 percent slopes.
Loring silt loam, 0 to 2 percent slopes.

Except for small patches of woods, these soils are in cultivated crops. They are well suited to corn, cotton, small grains, sorghum, truck crops, and other crops commonly grown in the county. Tall fescue and bermudagrass are well-suited grasses. Well-suited legumes are annual lespedeza, sericea lespedeza, white clover, crimson clover, button clover, kudzu, and vetch. The Memphis soil is well suited to alfalfa, but the Loring soil is only fairly well suited.

Level fields are suitable for continuous cotton or corn and a winter cover crop that is seeded late. The cover crop will protect the soil in winter and provide organic matter when it is turned under in spring. Contour tillage is required on slopes of 1½ to 2 percent. On such slopes a suitable cropping system is 2 years of row crops and 2 years of a grass-legume mixture.

Although the soils of this unit are moderately high in natural fertility, they respond well to additions of lime and fertilizer. The amounts of these amendments, however, should be determined by soil tests. Winter cover crops will help maintain the content of organic matter.

The soils in this unit are easy to keep in excellent tilth, and they can be cultivated within a wide range of moisture content. Alternating shallow tillage with deep tillarge will prevent a plowsole from forming.

CAPABILITY UNIT I-2

Capability unit I-2 consists of deep, well-drained, very gently sloping soils on bottom lands and foot slopes. The surface layer and subsoil of these soils are very friable silt loam or fine sandy loam.

Permeability is moderate, and the available water capacity is very high. These soils are medium acid or strongly acid. They are moderately high in natural fertility and contain a moderate amount of organic matter. Some areas on large flood plains are likely to be flooded for short periods. The soils in this unit are—

Vicksburg silt loam.
Vicksburg fine sandy loam.
Vicksburg silt loam, local alluvium.
Vicksburg fine sandy loam, local alluvium.

Nearly all the acreage of these soils is used for crops. Much of it is in corn, which is cropped intensively. The soils are well suited to cotton, corn, grain sorghum, and soybeans. Well-suited grasses are bermudagrass, tall fescue, orchardgrass, sudangrass, and Italian ryegrass. Alsike clover, crimson clover, white clover, and annual lespedeza are well-suited legumes. These soils are fairly well suited to sirup sorghum, truck crops, small grains, alfalfa, red clover, Caley peas, button clover, sericea lespedeza, kudzu, and hairy vetch.

The soils in this group may be row cropped intensively, but they need a cover crop to provide organic matter when the crop is plowed under in spring. Although they are generally moderately high in natural fertility, these soils respond very well when lime and fertilizer are added. In some areas plant nutrients have been lost through crop removal. In these areas potassium or phosphorus, or both, may be low. Most crops, particularly corn, need additions of nitrogen.

The good tilth of these soils is easily maintained. The soils generally can be tilled within a wide range of moisture content. Although some areas are flooded for short periods in winter and spring, the floods do little damage and are only a slight hazard. A greater hazard is the large ditches that are likely to cave in unless they are stabilized by planting kudzu or some other plant.

CAPABILITY UNIT I-3

Capability unit I-3 consists of deep, well drained or moderately well drained soils on bottom lands and foot slopes. These soils are in alluvium that washed from silty and sandy soils on uplands. The surface layer of the soils in this group is friable silt loam or fine sandy loam, and the subsoil is very friable silt loam to loamy sand.

Permeability is moderate in the surface layer and moderately slow in the subsoil. The available water capacity is very high. In winter and early in spring, the water table is near the surface and soils on the larger flood plains are frequently flooded. The soils in this unit are strongly acid. Their natural fertility is generally moderate and depends somewhat on the kinds of soils from which the alluvium washed. In many areas plant nutrients, particularly potassium, have been lost through continuous row cropping. The soils of this group contain a moderately large amount of organic matter. They are—

Collins silt loam.
Collins silt loam, local alluvium.
Collins fine sandy loam.
Collins fine sandy loam, local alluvium.

Most of the acreage of these extensive soils is used for crops, mainly corn, cotton, and lespedeza. The soils are suited to the crops commonly grown in the county and produce high yields if they are appropriately fertilized and otherwise well managed.

Figure 8.—In center tomatoes grown for market on Collins silt loam. Small grain is at right. The soil is in capability class I.

Figure 9.—Corn growing on Loring silt loam, 2 to 5 percent slopes. Capability class II.

Row crops can be grown every year (fig. 8). Probably more desirable than continuous row crops, however, where flooding is not likely, are winter cover crops for green manure and a short rotation of a row crop and a grass-legume mixture.

Some low spots may require drainage. It may be practical to build diversions in some areas to take away runoff from higher land.

Although these soils are moderate in natural fertility, additions of lime and a complete fertilizer are needed to keep crop yields high. Potash is particularly needed for cotton. Nitrogen and moderate amounts of phosphate are needed for corn. The fertilizer should be applied as indicated by soil tests.

These soils are easy to till and can be worked within a fairly wide range of moisture content. The areas that are flooded in winter and early in spring sometimes dry out late and need to be drained. V- or W-type ditches are generally satisfactory if outlets are available. Floods can be lessened by removing trees and trash from the channels of the larger streams.

CAPABILITY UNIT IIe-1

Capability unit IIe-1 consists of deep or moderately deep, well-drained, gently sloping soils on uplands and terraces. The surface layer is very friable silt loam, and the subsoil is firm to friable silty clay loam or silty clay.

Permeability is moderate, and the available water capacity is moderate to high. These soils are medium acid or strongly acid. They are moderately high in natural fertility and are moderately low in organic-matter content. The content of potash is particularly high. The soils in this unit are—

Lexington silt loam, 2 to 5 percent slopes.
Loring silt loam, 2 to 5 percent slopes.
Memphis silt loam, 2 to 5 percent slopes.

These soils are farmed rather intensively. Corn, cotton, and lespedeza are the main crops (fig. 9). The crops commonly grown in the county are well suited. These crops include small grains, truck crops, grain sorghum, tall fescue, bermudagrass, orchardgrass, sudangrass, whiteclover, alfalfa, and lespedeza.

A cropping system of 2 years of a grass-legume mixture and 2 years of row crops is suitable. More suitable, however, in the more sloping areas, is 1 year of a small grain, 1 year of meadow, and 1 year of row crop with the crop rows on the contour.

Although the soils of this group are moderately high in natural fertility, some plant nutrients have been lost through intensive cropping and need to be replaced in amounts indicated by soil tests. When amendments are added in these amounts, the crops respond well.

Although these soils may be cropped fairly intensively, crop residues should be left on or near the surface in winter and then turned under in spring. This practice will protect the soil and help maintain organic matter, as will seeding a green-manure crop in winter and turning it under in spring.

The good tilth of these soils is easily maintained, and the soils may be tilled within a wide range of moisture content. Shallow tillage alternated with deep tillage will help prevent a plowsole from forming.

Erosion, the chief hazard on these soils, can be controlled by tilling on the contour, building terraces with grassed waterways, and using close-growing crops in the cropping system.

CAPABILITY UNIT IIe-2

Capability unit IIe-2 consists of deep or moderately deep, gently sloping, moderately well drained soils with a fragipan at about 24 inches. These soils are on uplands and stream terraces. The surface layer is brown, very friable silt loam, and the subsoil is yellowish-brown to strong-brown silt loam or silty clay loam to clay loam.

Permeability is moderate above the pan and slow in it. The available water capacity is moderate. These soils are strongly acid. They are moderately high in natural fertil-

ity and are moderately low in organic-matter content. The soils are—

Grenada silt loam, 2 to 5 percent slopes.
Grenada silt loam, 2 to 5 percent slopes, eroded.
Grenada silt loam, terrace, 2 to 5 percent slopes.
Grenada silt loam, terrace, 2 to 5 percent slopes, eroded.

Except for small patches of woods, these soils are used for many kinds of crops. They are fairly well suited to corn, cotton, grain sorghum, soybeans, bermudagrass, tall fescue, orchardgrass, annual lespedeza, sericea lespedeza, white clover, crimson clover, red clover, and small grains. Alfalfa stands are difficult to maintain for more than about 2 years because the lower subsoil is waterlogged seasonally. Yields of summer-growing row crops, especially corn, vary from year to year, for the fragipan limits the depth of rooting to the upper foot or two.

If these soils are adequately fertilized and are tilled on the contour, a suitable cropping system is a small grain, a grass-legume mixture, and corn or cotton, each grown for 1 year. The row cropping can be a little more intensive if the soils are stripcropped or terraced. Unless fertilization is heavy, the grass-legume mixture should be left for 2 years. These soils respond well to lime and fertilizer, which should be applied in amounts determined by soil tests. If crop residue is left on or near the surface in winter and is turned under in the spring, it will help maintain organic matter. A winter cover crop used as green manure is also useful for maintaining organic matter.

These soils can be kept in good tilth easily and can be tilled within a fairly wide range of moisture content. Partly because permeability is slow in the fragipan and partly because water runs in from other areas, some fields dry out late in spring. Alternating shallow tillage with deep tillage will help prevent a plowsole from forming.

Erosion is the chief hazard in cultivated fields. It can be controlled by tilling on the contour, by building terraces, grassed waterways, and by using adequately fertilized, close-growing crops in a rotation.

CAPABILITY UNIT IIw–1

Capability unit IIw–1 consists of deep, moderately well drained, nearly level soils that have a fragipan. These soils are on uplands and stream terraces. The surface layer is very friable silt loam, and the subsoil is friable or firm silt loam and silty clay loam. The pan is strongly developed, brittle, and compact.

Permeability is moderate above the pan and slow in it. The available water capacity is moderate. These soils are strongly acid. They are moderately low in organic-matter content and moderate in natural fertility. The soils are—

Grenada silt loam, 0 to 2 percent slopes.
Grenada silt loam, terrace, 0 to 2 percent slopes.

Except for small, scattered patches of woods, all the acreage of these soils is used for crops. Crops commonly grown in the area are suitable. Suited crops are cotton, sorghum, soybeans, most truck crops, bermudagrass, tall fescue, orchardgrass, sudangrass, red clover, small grains, white clover, Caley peas, annual lespedeza, and sericea lespedeza. Except in dry years, corn is fairly suitable. Alfalfa is poorly suited.

Level fields are suitable for continuous row crops and a winter cover crop that is seeded late. The more sloping fields are suitable for 2 years of row crops followed by 2 years of a grass-legume mixture. Another suitable system is 1 year of corn or cotton, 1 year of a small grain, and 1 year of annual lespedeza that is seeded in the small grain.

These soils are easy to work and to keep in good tilth. They ordinarily dry out several days later in spring than do the more rolling, better drained soils because runoff is slow and the fragipan causes seasonal waterlogging in the lower subsoil.

Heavy applications of fertilizer are suitable, for the soils respond if the fertilization is combined with other good management. The soils should be tested to determine the kind of fertilizer needed and the rate of application.

CAPABILITY UNIT IIIe–1

Capability unit IIIe–1 consists of deep and moderately deep, well-drained, gently sloping and sloping soils on uplands and stream terraces. The plow layer of these soils is friable silt loam in most places, but on some severely eroded slopes it is silty clay loam. The subsoil ranges from silt loam to silty clay loam but, in most places, is silt loam. These soils have a brown surface layer and a brown to reddish-brown subsoil. They are—

Lexington silty clay loam, 2 to 5 percent slopes, severely eroded.
Lexington silt loam, 5 to 8 percent slopes.
Loring silt loam, 2 to 5 percent slopes, severely eroded.
Loring silt loam, 5 to 8 percent slopes.
Loring silt loam, 5 to 8 percent slopes, severely eroded.
Memphis silty clay loam, 2 to 5 percent slopes, severely eroded.
Memphis silt loam, 5 to 8 percent slopes.
Memphis silty clay loam, 5 to 8 percent slopes, severely eroded.

Permeability is moderate in the Lexington and Memphis soils and in the upper part of the Loring soils. In the lower part of the Loring soils, permeability is moderately slow. The soils of this group have a high to moderate available water capacity. They are medium acid or strongly acid. Natural fertility is moderately high where the soils have not been depleted. The content of organic matter is moderate to very low.

These soils make up a large acreage, most of which has been cleared and is used for many kinds of crops. Corn, cotton, and lespedeza are the main crops. All these soils are suited to most crops commonly grown in the county, but the Memphis and Loring soils are suited to a wider range of crops than are the Lexington. All the soils are well suited to cotton, truck crops, fruits, small grains, white clover, crimson clover, annual lespedeza, alfalfa, orchardgrass, and tall fescue. The uneroded and moderately eroded Memphis and Loring soils are well suited to corn. The rest of the soils are only fairly well suited to corn.

If these soils are tilled on the contour and are appropriately fertilized, a suitable cropping system is 1 year of a small grain, 2 years of a grass legume mixture, and 1 year of a row crop. If the soils are stripcropped or terraced and are fertilized, 2 years of meadow and 2 years of a row crop are suitable.

Although the soils of the group are moderate to moderately high in natural fertility, some plant nutrients have been lost through continuous cropping and need to be replaced. Fertilizer and lime should be added at rates

indicated by soil tests. Turning under cover crops will help increase the supply of organic matter.

These soils generally are in good tilth, and they can be tilled within a wide range of moisture content. Turning under cover crops and crop residue improves tilth, particularly in the severely eroded, finer textured soils. Alternating shallow tillage with deep tillage will help to prevent a plowsole from forming.

Erosion is the chief hazard in cultivated fields. It can be controlled by stripcropping, by building terraces with grassed waterways, and by using adequately fertilized, close-growing crops in a rotation. Crop residue on or near the surface will help control erosion in winter.

CAPABILITY UNIT IIIe-2

Capability unit IIIe-2 consists of deep and moderately deep, moderately well drained, gently sloping or sloping soils that have a fragipan. These soils are on uplands and stream terraces. The depth to the pan ranges from 20 to 30 inches in the uneroded and moderately eroded soils and from about 10 to 20 inches in the severely eroded soils. The plow layer of the uneroded and moderately eroded soils is brown, very friable silt loam. The plow layer of the severely eroded soils is brown to yellowish-brown, friable to firm silt loam that contains slightly more clay than the plow layer of the less eroded soils.

Permeability is moderate above the pan and is slow in it. The available water capacity is moderate to low. The soils are strongly acid. They are moderate in natural fertility and are moderately low or low in organic-matter content. The soils are—

Grenada silt loam, 2 to 5 percent slopes, severely eroded.
Grenada silt loam, 5 to 8 percent slopes.
Grenada silt loam, 5 to 8 percent slopes, eroded.
Grenada silt loam, terrace, 2 to 5 percent slopes, severely eroded.
Grenada silt loam, terrace, 5 to 8 percent slopes, eroded

Much of the acreage of these soils is cropped, chiefly to corn, cotton, and lespedeza. A large acreage is idle. The soils are suited to many kinds of crops. They are fairly well suited to cotton, sorghum, soybeans, small grains, tall fescue, sudangrass, white clover, crimson clover, annual lespedeza, and sericea lespedeza. They are rather poorly suited to alfalfa and corn.

If these soils are stripcropped (fig. 10) or tilled on the contour, a suitable cropping system is a small grain, 3 years of a grass-legume mixture, and 1 year of corn. If cotton is used instead of corn, these soils should be kept in meadow for 4 years. Also suitable, if adequate fertilizer is added, is a system consisting of a small grain, a grass-legume mixture, and corn, each grown for 1 year. The two systems described were planned for a severely eroded Grenada soil on slopes of 6 percent that are 200 feet long. A stronger or longer slope may be cropped a little less often, and an uneroded, milder slope may be cropped more intensively.

Figure 10.—Between strips of sericea lespedeza, cotton planted on Grenada silt loam. Capability class III.

The soils of this unit are moderate to moderately low in natural fertility and are moderately low to very low in organic-matter content. A complete fertilizer is generally needed for good yields of all crops. Nitrogen is especially needed by corn and potash by cotton. Soil tests, however, should be made to determine rates of liming and fertilization, for the soils respond well if these amendments are applied at appropriate rates.

The soils in this group generally have fair to good tilth and can be worked within a fairly wide range of moisture content. But in some areas the soils dry slowly in spring, and they get hard and cloddy when they do dry. Erosion is the chief hazard and can be controlled by tilling on the contour, by stripcropping, by building terraces with grassed waterways, by applying adequate fertilizer, or by using close-growing crops much of the time in a long rotation. Crop residue left on or near the surface in winter helps to reduce runoff and to protect the soil. If the residue is turned under in spring, tilth will be improved and the organic-matter content maintained.

CAPABILITY UNIT IIIw-1

Capability unit IIIw-1 consists of somewhat poorly drained, level to gently sloping, deep soils that are on uplands and stream terraces and have a strong fragipan. The pan is at a depth of 18 to 26 inches. These soils have a very friable, brown, faintly mottled silt loam plow layer and a yellowish-brown, mottled subsoil that is friable to firm heavy silt loam or light silty clay loam. The fragipan is generally gray, mottled silty clay loam that is brittle and compact.

Permeability is moderate above the pan and slow in it. The available water capacity in summer is medium to low. These soils are strongly acid. They are moderately low in natural fertility and are moderately low to low in organic-matter content. The soils are—

Calloway silt loam, 0 to 2 percent slopes.
Calloway silt loam, 2 to 5 percent slopes.
Calloway silt loam, 2 to 5 percent slopes, eroded.
Calloway silt loam, terrace, 0 to 2 percent slopes.
Calloway silt loam, terrace, 2 to 5 percent slopes.
Calloway silt loam, terrace, 2 to 5 percent slopes, eroded.

Except for small patches in woods, most of the acreage is used for row crops and pasture. The soils are fairly well suited to sorghum, soybeans, bermudagrass, tall fescue, Italian ryegrass, white clover, alsike clover, Caley peas, annual lespedeza, and hairy vetch. Some farmers grow cotton and corn successfully by using improved management. Under ordinary management these soils are poorly suited to cotton and corn. They are also poorly suited to truck crops, small grains, red clover, crimson clover, and sericea lespedeza. They are not suited to alfalfa.

A suitable cropping system on the more sloping, eroded soils is 1 year of a small grain, 2 years of a grass-legume mixture, and 2 years of a row crop. The less sloping soils can be cropped more intensively if they are adequately fertilized.

These soils require additions of fertilizer, particularly potash and phosphate. Amendments should be added in amounts indicated by soil tests. A winter cover crop plowed under for green manure helps to maintain organic matter and to improve tilth and the available water capacity.

Because the strong fragipan in these soils does not permit deep penetration of water, these soils stay wet until late in spring and they are droughty in summer and early in fall. Consequently, their use for row crops is limited. Ditches that divert water from higher soils help some areas to dry earlier in spring. Draining low areas is also helpful. If organic matter is added, these soils will absorb and hold more water for use by plants in summer and early in fall.

CAPABILITY UNIT IIIw–2

Capability unit IIIw–2 consists of somewhat poorly drained, level to gently sloping soils on bottom lands. The surface layer is brown, friable to very friable silt loam or fine sandy loam, and the subsoil is gray, friable silt loam to sandy loam mottled with brown.

Permeability is moderate in the surface layer and moderately slow in the subsoil. In summer these soils supply a large amount of moisture to plants. In winter and early in spring, the water table is at or near the surface, and most areas are flooded frequently. These soils are strongly acid. Natural fertility is moderate, but the content of potassium is low or very low in most of the soils. The content of organic matter is moderately high. The soils are—

- Falaya silt loam.
- Falaya silt loam, local alluvium.
- Falaya fine sandy loam.
- Falaya fine sandy loam, local alluvium.

Much of the acreage is in row crops and pasture, but there are many areas in woods. Where surface drainage is adequate, these soils are well suited to sirup sorghum, soybeans, bermudagrass, tall fescue, white clover, alsike clover, and annual lespedeza. These drained areas are fairly well suited to cotton, corn, grain sorghum, truck crops, small grains, crimson clover, sericea lespedeza, and hairy vetch. They are not suited to alfalfa. In general, crop suitability depends on the amount of excess water these soils receive and how effectively it can be removed.

These soils can be used intensively without losing large amounts of soil material through erosion. Nevertheless, continuous row cropping is risky unless drainage ditches, diversion ditches, detention dams, or other structures are provided. Then a system consisting of a continuous row crop and a winter cover is suitable. If the winter cover is not practical because of flooding, a suitable system is 2 years of a row crop and 2 years of a grass-legume mixture.

Although the soils of this unit are moderately fertile, some areas contain a very small amount of potassium. Most areas need lime and a complete fertilizer, but soil tests should be made to determine rates of fertilization and liming. The addition of organic matter will improve tilth and help the soil to absorb and retain more moisture in summer.

Excess water is the chief hazard. It can be removed or diverted by drainage ditches, diversion ditches, or detention dams. Removing snags, drift, and other obstructions from the larger streams will lessen flooding. Kudzu can be used to stabilize ditchbanks and to help prevent trees from growing and obstructing the stream.

CAPABILITY UNIT IVe–1

Capability unit IVe–1 consists of deep and moderately deep, well-drained soils on uplands and stream terraces. Erosion ranges from none to severe. Because the amount of the original surface layer removed by erosion varies greatly, the texture of the plow layer varies from silt loam through fine sandy loam to silty clay loam. For the same reason, the color of the plow layer is highly variable.

Although slope and erosion differ widely, these soils are somewhat similar except for texture and color of the surface soil. Permeability is generally moderate, and the available water capacity is moderate to low. These soils are strongly acid. They are moderately high to moderately low in natural fertility and are moderately high to very low in organic-matter content. The soils are—

- Lexington silt loam, 8 to 12 percent slopes.
- Lexington silty clay loam, 5 to 8 percent slopes, severely eroded.
- Lexington-Ruston complex, 8 to 12 percent slopes.
- Loring silt loam, 8 to 12 percent slopes.
- Loring silt loam, 8 to 12 percent slopes, severely eroded.
- Loring-Gullied land complex, 5 to 12 percent slopes.
- Memphis silt loam, 8 to 12 percent slopes.
- Memphis silty clay loam, 8 to 12 percent slopes, severely eroded.
- Memphis-Gullied land complex, 5 to 12 percent slopes.

These soils are in pasture, in patches of row crops, and in small areas of woods. Many areas are idle. Probably the best use is pasture, but row crops can be grown in a long cropping system. Suitable crops are cotton, corn, grain sorghum, small grains, orchardgrass, orchard fruits, tall fescue, bermudagrass, alfalfa, red clover, white clover, alsike clover, annual lespedeza, Caley peas, kudzu, sericea lespedeza, and hairy vetch. Generally, corn and other deep-rooted crops do not grow so well as cotton and other crops that require less moisture in summer.

If these soils are tilled on the contour, stripcropped, and moderately fertilized, a suitable cropping system is 1 year of a small grain, 4 years of a grass-legume mixture, and 1 year of corn. On milder slopes cotton may be grown instead of corn, and sericea lespedeza instead of both the small grain and the grass-legume mixture. Coastal bermudagrass and a mixture of tall fescue and ladino clover make good pasture and hay.

Although these soils are moderate to moderately high in natural fertility, particularly potash, some of the nutrients have been lost and need to be replaced. The fertilizer and lime needed can be determined by soil tests. Tilth is generally good to fair and is easily maintained, and the soils can be worked within a fairly wide range of moisture content.

Erosion is the chief hazard in cultivated fields, but it can be controlled by adding fertilizer, by seeding close-growing crops, by stripcropping, and by building terraces with vegetated waterways on the milder slopes.

CAPABILITY UNIT IVe-2

Capability unit IVe-2 consists of sloping and strongly sloping, deep and moderately deep, moderately well drained soils on uplands and stream terraces. These soils have a fragipan. The moderate slopes have been more severely eroded than the strong slopes. The fragipan is 20 to 30 inches from the surface in the uneroded soils and is about 10 to 20 inches from the surface in the severely eroded soils. In the uneroded soils the surface layer is brown, very friable silt loam. The surface layer of the severely eroded soils is friable to firm heavy silt loam.

Permeability is moderate above the pan and is slow in it. The available water capacity is low to very low. The soils are strongly acid. Natural fertility is moderate or moderately low, and the content of organic matter is low or very low. The soils are—

Grenada silt loam, 5 to 8 percent slopes, severely eroded.
Grenada silt loam, 8 to 12 percent slopes.
Grenada silt loam, terrace, 5 to 8 percent slopes, severely eroded.

Most areas of these soils are idle or are in wild pasture. Pasture is generally the best use, but under good management many crops can be grown. These soils are fairly well suited or poorly suited to cotton, corn, truck crops, small grains, tall fescue, bermudagrass, button clover, crimson clover, white clover, annual lespedeza, sericea lespedeza, kudzu, and hairy vetch. They are not suited to alfalfa.

If these soils are stripcropped and heavily fertilized, a suitable cropping system is 1 year of a small grain, 4 years of meadow, and 1 year of corn. But hay and pasture grown continuously is more suitable in most areas because the fragipan limits the root zone. Well suited for hay and pasture are sericea lespedeza seeded alone, tall fescue seeded with whiteclover, or bermudagrass and whiteclover seeded alone or together. Large additions of nitrogen are needed for the bermudagrass, and lesser amounts for the whiteclover.

The soils of this group are moderately low in natural fertility and need lime and fertilizer for all crops. Soil tests should be made to determine appropriate rates for applying these amendments.

Erosion is a hazard, but it can be controlled by using adequately fertilized, close-growing crops continuously or in a long rotation. Another hazard is caused by the fragipan, which does not allow moisture to penetrate deeply. Consequently, the soil is wet in spring and droughty late in summer or in fall. It will absorb and hold more water for the use of plants in summer if organic matter is maintained by growing close-growing crops continuously or much of the time in a long rotation.

CAPABILITY UNIT IVw-1

Capability unit IVw-1 consists of level to gently sloping, poorly drained soils on uplands, stream terraces, and bottom lands. The soils on uplands and stream terraces have a pan at a depth of 16 to 26 inches. The soils on bottom lands have a high water table most of the year and are subject to frequent flooding, particularly in winter and early in spring. The soils in this unit are generally in large areas, but in some areas the soils on uplands are in areas of only 2 or 3 acres. The surface layer of the soils in this unit is very friable, grayish-brown silt loam or fine sandy loam. The subsoil is gray and medium textured.

The soils of this group have moderately slow or slow permeability above the pan and slow permeability within it. They are wet in winter and spring and generally dry out late in spring. These soils are strongly acid. Natural fertility is moderate to low, and the content of organic matter is moderately high to low. The soils are—

Henry silt loam, terrace.
Henry silt loam, overwash.
Henry silt loam.
Waverly fine sandy loam.
Waverly silt loam.

The Henry soils are on flats of uplands and stream terraces, and the Waverly soils are on bottom lands. The Henry soils hold little available moisture in summer and are very droughty late in summer. They are generally waterlogged in winter and spring, and some areas are ponded after rains. The Waverly soils are flooded frequently and have a high water table.

Much of the acreage of the soils in this group has not been cleared. Crops are grown on some cleared areas, but wild pasture is the most common use. Because these soils are poorly drained and are flooded frequently, many crops common in the area can be grown with only fair success. If surface drainage is adequate, the soils in this group are fairly well suited to sorghum, soybeans, tall fescue, bermudagrass, white clover, alsike clover, and annual lespedeza. The Henry soils are fairly well suited to corn and sudangrass if surface drainage is adequate. Even if they are drained, the soils of this group are generally poorly suited to cotton and small grains.

Without better drainage, these soils are probably best suited to pasture. The pasture, however, should not be grazed in wet seasons because trampling by livestock will compact the soil.

Excess water in winter and spring and frequent flooding after rains limit the use of these soils. Where possible, the soils should be drained and protected against runoff from higher soils by diversions.

CAPABILITY UNIT VIe-1

Capability unit VIe-1 consists of deep and moderately deep, somewhat excessively drained to moderately well drained soils on sloping to moderately steep uplands and stream terraces. Although their physical properties vary widely, these soils have many qualities in common and require somewhat similar management. The soils are somewhat droughty, are on moderate to moderately steep slopes, and are likely to be severely eroded.

Permeability ranges from slow to very rapid, and the available water capacity ranges from moderate to very low. These soils are medium acid or strongly acid. Natural fertility is moderate to low, and the content of organic matter is moderately low to very low. The soils are—

Grenada-Gullied land complex, 5 to 8 percent slopes.
Grenada silt loam, 8 to 12 percent slopes, severely eroded.
Lexington silty clay loam, 8 to 12 percent slopes, severely eroded.
Lexington-Ruston complex, 8 to 12 percent slopes, severely eroded.
Lexington-Ruston-Gullied land complex, 8 to 12 percent slopes.
Loring silt loam, 12 to 20 percent slopes.
Loring silt loam, 12 to 20 percent slopes, severely eroded.
Loring-Gullied land complex, 12 to 20 percent slopes.
Memphis-Gullied land complex, 12 to 20 percent slopes.

These soils make up a large acreage in the county, and much of the acreage is severely eroded and idle. A small acreage is still in woods. The soils are not well suited to most row crops. They are fairly well suited to tall fescue, bermudagrass, and other grasses and to sericea lespedeza, annual lespedeza, whiteclover, and other legumes. Only the deep, well drained soils of this group are suited to alfalfa.

Pasture can be established and maintained if lime and fertilizer are applied at rates determined by soil tests. Grazing should be carefully controlled.

Erosion is the chief hazard. Cleared areas can be protected from erosion by seeding close-growing crops and adding fertilizer at appropriate rates. Areas that have not been cleared probably should remain in trees.

CAPABILITY UNIT VIIe-1

Capability unit VIIe-1 consists of soils on uplands and stream terraces and miscellaneous land types. These soils are somewhat excessively drained to moderately well drained. They are on strong to steep slopes and are uneroded to gullied.

These soils have low to very low available water capacity and rapid to very rapid surface runoff. They are medium acid or strongly acid. Their natural fertility is moderate to very low. The soils are—

- Grenada-Gullied land complex, 8 to 12 percent slopes.
- Gullied land, sandy.
- Gullied land, silty.
- Lexington-Ruston complex, 12 to 30 percent slopes.
- Lexington-Ruston complex, 12 to 30 percent slopes, severely eroded.
- Lexington-Ruston-Gullied land complex, 12 to 30 percent slopes.
- Ruston sandy loam, 12 to 30 percent slopes.
- Ruston sandy clay loam, 12 to 30 percent slopes, severely eroded
- Ruston-Eustis complex, 12 to 30 percent slopes.

The large, cleared acreage of these soils is badly eroded or gullied and is either idle or in wild pasture. Because they are susceptible to severe erosion, the soils of this group are not suited to row crops. Very few areas are suited to pasture, but a few selected spots may be lightly grazed if they have been seeded to kudzu, bermudagrass, or another plant to control erosion. Probably the best use for these soils is trees. Uncleared areas should remain in trees that are protected from fire and grazing. Pine or locust are probably the best trees for planting in cleared areas.

CAPABILITY UNIT VIIs-1

Capability unit VIIs-1 consists only of Sandy alluvial land. This soil is excessively drained, level to gently sloping, and sandy. It lies along flood plains and at the base of gully washouts.

Permeability is very rapid, and the available water capacity is very low. The water table is high in winter and spring but is at a depth of 6 to 10 feet in summer. This soil is strongly acid. It is very low in natural fertility and in organic matter.

The total acreage of this soil is small. A few areas are cultivated, some are idle, some are in pasture, and a few remain in trees. Much of this soil is in small areas that are surrounded by soils more suitable for crops. Crop rows generally run through these small areas, but yields are very low. If large amounts of lime and fertilizer are added in areas where grass can grow, limited grazing is possible. This practice, however, is not feasible in most areas. Because this soil is very droughty, low in natural fertility, and very strongly acid, its best use probably is for trees. Cottonwood trees are suited to the larger areas.

CAPABILITY UNIT VIIw-1

Capability unit VIIw-1 consists only of Swamp. This land type is level, very poorly drained, and has a water table at or above the surface most of the time. It is in large areas on river flood plains. Unless it is drained, Swamp is not suited to crops or pasture and is poorly suited to most trees. The native vegetation consists of cypress and gum trees, cattails, and water-loving grasses.

Estimated yields

Table 2 lists estimated yields of the principal crops in Fayette County, under two levels of management. In columns A are yields to be expected under management commonly practiced in the county. In columns B are yields to be expected under improved management that is defined in this subsection. The yields in columns B are not the highest obtainable but are yields that can be obtained by farmers who use management appropriate for the soils.

The estimates in columns B are based on (1) yields obtained in long-term experiments; (2) yields harvested on farms in cooperative studies of soil management and productivity; and (3) yields estimated by soil scientists and agronomists who have had much experience with the crops and soils in Fayette County.

The data on yields obtained in experiments were adjusted to reflect the combined effects of slope, weather, and levels of management. If such data were not available, estimates were made by using available data for similar soils. For all estimates average rainfall of a long period and no irrigation are assumed. An overflow hazard was not assumed for soils on bottom lands, because the effects of flooding on yields must be considered locally.

To obtain the yields listed in columns B of table 2, the farmer should follow certain general practices for all crops, as well as practices described for each crop listed in the table. These practices are the ones assumed in estimating the yields in columns B. For all crops—

1. Fertilize at planting according to the needs indicated by chemical tests and by past cropping and fertilization.
2. Use crop varieties that are high yielding and are suited to the area.
3. Prepare a good seedbed.
4. Plant or seed by suitable methods, at suitable rates, and at the right time.
5. Inoculate legumes.
6. Use shallow cultivation for row crops.
7. Control weeds, insects, and diseases.
8. Use cropping systems like those suggested in the subsection "Capability Units in Fayette County."
9. Manage water where needed by contour cultivating, terracing, or contour stripcropping, and by sodding waterways.
10. Protect soil from overgrazing.

TABLE 2.—*Estimated average acre yields of principal crops under two levels of management*

[Average rainfall of a long period and no irrigation are assumed. Absence of figure indicates crop is not suitable for the soil specified or is not commonly grown on it]

Soil	Cotton		Corn		Grain sorghum		Soybeans		Alfalfa		Sericea lespedeza		Wheat		Oats		Lespedeza seeded alone		Pasture	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lb	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Cow-acre-days*[1]	*Cow-acre-days*[1]
Calloway silt loam, 0 to 2 percent slopes	285	575	20	45	22	35	13	25					9	14	8	25	0.7	1.2	70	115
Calloway silt loam, 2 to 5 percent slopes	295	600	20	45	22	35	13	25					10	17	10	30	.7	1.2	70	115
Calloway silt loam, 2 to 5 percent slopes, eroded	295	600	20	45	22	35	13	24					10	17	10	30	.7	1.2	70	105
Calloway silt loam, terrace, 0 to 2 percent slopes	285	575	20	40	22	35	13	25					9	14	8	25	.7	1.2	70	115
Calloway silt loam, terrace, 2 to 5 percent slopes	295	600	20	40	22	35	13	25					10	17	10	30	.7	1.2	70	115
Calloway silt loam, terrace, 2 to 5 percent slopes, eroded	295	600	20	40	22	35	13	24					10	17	10	30	.7	1.2	70	105
Collins fine sandy loam	500	740	50	75	38	55	19	32	1.4	2.8	1.7	2.4	17	24	35	50	1.3	1.8	105	180
Collins fine sandy loam, local alluvium	500	740	50	75	38	55	19	32	1.4	2.8	1.7	2.4	17	24	35	50	1.3	1.8	105	180
Collins silt loam	500	775	50	85	40	60	22	37	1.9	2.0	1.8	2.5	17	24	35	50	1.3	2.0	115	190
Collins silt loam, local alluvium	500	775	50	85	40	60	22	37	1.9	2.0	1.8	2.5	17	24	35	50	1.3	2.0	115	190
Falaya fine sandy loam	500	700	38	65	35	50	18	32					11	17			1.3	1.8	100	160
Falaya fine sandy loam, local alluvium	500	700	38	65	35	50	18	32					11	17			1.3	1.8	105	165
Falaya silt loam	500	725	40	65	39	55	20	34					11	17			1.2	1.9	100	165
Falaya silt loam, local alluvium	500	725	40	65	39	55	20	34									1.2	1.9	105	170
Grenada silt loam, 0 to 2 percent slopes	400	675	28	58	29	41	16	30	1.7	2.2	2.0	2.8	20	29	42	60	1.1	1.7	95	160
Grenada silt loam, 2 to 5 percent slopes	370	650	25	55	26	37	15	30	1.4	2.0	1.8	2.5	19	27	38	55	.9	1.5	90	155
Grenada silt loam, 2 to 5 percent slopes, eroded	370	575	25	52	26	37	15	28	1.4	2.0	1.8	2.5	19	27	38	55	9	1.4	90	150
Grenada silt loam, 2 to 5 percent slopes, severely eroded	280	420	20	38	20	28	10	19	1.1	1.5	1.3	1.9	14	20	29	41	7	1.0	55	110
Grenada silt loam, 5 to 8 percent slopes	295	550	20	46	21	30	10	26	1.1	1.6	1.4	2.0	15	22	31	44	.7	1.2	70	120
Grenada silt loam, 5 to 8 percent slopes, eroded	295	475	20	43	21	30	10	24	1.1	1.6	1.4	2.0	15	22	31	44	.7	1.1	65	115
Grenada silt loam, 5 to 8 percent slopes, severely eroded	190	285	15	28	14	20	7	16	.8	1.1	1.0	1.4	11	15	21	30	.5	.8	50	80
Grenada silt loam, 8 to 12 percent slopes	258	450	18	38	18	26	9	21	1.0	1.4	1.3	1.8	13	19	27	39	.6	1.8	60	110
Grenada silt loam, 8 to 12 percent slopes, severely eroded	170	250	12	23	11	16	6	10	.6	.9	.8	1.1	8	12	18	25	.4	.5	45	70
Grenada silt loam, terrace, 0 to 2 percent slopes	400	675	28	58	29	41	16	30	1.7	2.2	2.0	2.8	20	29	42	60	1.1	1.7	95	160
Grenada silt loam, terrace, 2 to 5 percent slopes	370	650	25	55	26	37	15	30	1.4	2.0	1.8	2.5	19	27	38	55	.9	1.5	90	155
Grenada silt loam, terrace, 2 to 5 percent slopes, eroded	370	575	25	52	26	37	15	28	1.4	2.0	1.8	2.5	19	27	38	55	.9	1.4	90	150
Grenada silt loam, terrace, 2 to 5 percent slopes, severely eroded	275	420	19	38	20	28	10	19	1.1	1.5	1.3	1.9	14	20	29	41	.7	1.0	70	120
Grenada silt loam, terrace, 5 to 8 percent slopes, eroded	295	475	20	46	21	30	10	24	1.1	1.6	1.4	2.0	15	22	31	44	.7	1.1	65	115
Grenada silt loam, terrace, 5 to 8 percent slopes, severely eroded	190	285	14	28	14	20	7	16	.8	1.1	1.0	1.4	11	15	21	30	.5	.8	50	80
Grenada-Gullied land complex, 5 to 8 percent slopes																			25	40
Grenada-Gullied land complex, 8 to 12 percent slopes																			25	40
Gullied land, sandy																				
Gullied land, silty																				
Henry silt loam			18	35	18	25	9	17									.6	1.0	60	96
Henry silt loam, overwash			40	70	39	55	19	27									1.3	1.9	120	170
Henry silt loam, terrace			18	35	18	25	9	17									.6	1.0	60	90
Lexington silt loam, 2 to 5 percent slopes	500	700	42	65	33	46	20	29	2.0	3.0	1.7	2.5	21	30	42	60	.9	1.5	105	150

See footnote at end of table.

TABLE 2.—*Estimated average acre yields of principal crops under two levels of management*—Continued

Soil	Cotton		Corn		Grain sorghum		Soybeans		Alfalfa		Sericea lespedeza		Wheat		Oats		Lespedeza seeded alone		Pasture	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lb.	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Cow-acre-days*[1]	*Cow-acre-days*[1]
Lexington silt loam, 5 to 8 percent slopes	450	600	35	55	24	39	16	25	1.7	2.5	1.5	2.1	20	25	36	51	0.8	1.2	90	135
Lexington silt loam, 8 to 12 percent slopes	375	525	29	49	25	33	13	22	1.4	2.2	1.3	1.9	16	22	32	45	.7	1.0	70	120
Lexington silty clay loam, 2 to 5 percent slopes, severely eroded	400	560	32	52	22	37	14	23	1.6	2.4	1.4	2.0	19	24	34	48	.8	1.1	70	115
Lexington silty clay loam, 5 to 8 percent slopes, severely eroded	325	420	19	39	18	28	11	18	1.2	1.8	1.0	1.5	13	18	26	36	.6	.8	60	105
Lexington silty clay loam, 8 to 12 percent slopes, severely eroded	210	350	15	32	16	23	10	14	1.0	1.5	.9	1.3	11	15	21	30	.5	.7	45	80
Lexington-Ruston complex, 8 to 12 percent slopes	330	450	22	41	25	33	11	17	---	---	1.2	1.7	13	19	26	37	.6	.8	60	90
Lexington-Ruston complex, 8 to 12 percent slopes, severely eroded	180	300	10	28	13	22	8	11	---	---	.8	1.2	9	13	18	25	.4	.5	40	60
Lexington-Ruston complex, 12 to 30 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.3	.6	45	65
Lexington-Ruston complex, 12 to 30 percent slopes, severely eroded	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.2	.4	30	45
Lexington - Ruston - Gullied land complex, 8 to 12 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lexington - Ruston - Gullied land complex, 12 to 30 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Loring silt loam, 0 to 2 percent slopes	500	700	45	70	35	50	22	33	2.5	3.0	2.2	3.1	21	30	44	63	1.2	1.8	110	165
Loring silt loam, 2 to 5 percent slopes	475	650	42	66	33	46	20	31	2.2	3.2	2.0	2.8	20	28	41	58	1.1	1.6	105	155
Loring silt loam, 2 to 5 percent slopes, severely eroded	370	520	32	52	22	37	14	22	1.9	2.6	1.5	2.2	15	22	33	46	.9	1.3	75	130
Loring silt loam, 5 to 8 percent slopes	385	550	35	55	24	39	16	26	1.9	2.7	1.7	2.4	17	24	34	49	1.0	1.4	85	145
Loring silt loam, 5 to 8 percent slopes, severely eroded	300	390	19	39	18	28	11	19	1.3	1.9	1.2	1.7	12	17	25	35	.7	1.0	60	110
Loring silt loam, 8 to 12 percent slopes	350	490	29	49	25	33	13	23	1.7	2.4	1.5	2.1	15	21	30	43	.8	1.2	65	125
Loring silt loam, 8 to 12 percent slopes, severely eroded	200	325	15	32	16	23	10	14	1.1	1.6	1.0	1.4	10	14	20	29	.6	.8	45	80
Loring silt loam, 12 to 20 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	60	110
Loring silt loam, 12 to 20 percent slopes, severely eroded	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	40	65
Loring-Gullied land complex, 5 to 12 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	25	40
Loring-Gullied land complex, 12 to 20 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	20	35
Memphis silt loam, 0 to 2 percent slopes	525	775	50	76	38	55	24	36	2.7	3.2	2.2	3.3	22	32	46	65	1.2	1.8	120	175
Memphis silt loam, 2 to 5 percent slopes	500	700	45	72	35	50	21	33	2.5	3.5	2.1	3.0	21	30	42	60	1.1	1.6	115	160
Memphis silt loam, 5 to 8 percent slopes	450	600	39	60	25	42	17	28	2.1	3.0	1.7	2.5	18	25	36	51	1.0	1.4	105	145
Memphis silt loam, 8 to 12 percent slopes	375	525	32	52	22	37	14	24	1.8	2.6	1.5	2.2	15	22	32	45	.8	1.2	80	130
Memphis silty clay loam, 2 to 5 percent slopes, severely eroded	400	560	35	56	24	40	16	25	2.0	2.8	1.6	2.4	17	24	34	48	.9	1.3	90	125
Memphis silty clay loam, 5 to 8 percent slopes, severely eroded	325	420	24	42	23	30	12	18	1.6	2.1	1.3	1.8	12	18	25	36	.7	1.0	70	110
Memphis silty clay loam, 8 to 12 percent slopes, severely eroded	210	350	20	35	18	25	11	15	1.2	1.7	1.1	1.5	11	15	21	30	.6	.8	55	85
Memphis-Gullied land complex, 5 to 12 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	25	40
Memphis-Gullied land complex, 12 to 20 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	20	35
Ruston sandy clay loam, 12 to 30 percent slopes, severely eroded	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.3	.4	30	55
Ruston sandy loam, 12 to 30 percent slopes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.4	.6	50	85

See footnote at end of table.

TABLE 2.—*Estimated average acre yields of principal crops under two levels of management*—Continued

Soil	Cotton		Corn		Grain sorghum		Soybeans		Alfalfa		Sericea lespedeza		Wheat		Oats		Lespedeza seeded alone		Pasture	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lb.	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Cow-acre-days*[1]	*Cow-acre-days*[1]
Ruston-Eustis complex, 12 to 30 percent slopes																	0.4	0.6	40	70
Sandy alluvial land																	.4	.6	45	65
Swamp																				
Vicksburg fine sandy loam	525	750	55	85	42	60	20	37	2.0	2.9	1.8	2.5	18	25	38	53	1.3	1.8	130	190
Vicksburg fine sandy loam, local alluvium	525	760	55	85	42	60	20	37	2.0	2.9	1.8	2.5	18	25	38	53	1.3	1.8	130	190
Vicksburg silt loam	525	785	60	100	46	65	21	40	2.1	3.0	1.8	2.6	18	25	38	55	1.4	2.0	140	210
Vicksburg silt loam, local alluvium	525	785	60	100	46	65	21	40	2.1	3.0	1.8	2.6	18	25	38	55	1.4	2.0	140	210
Waverly fine sandy loam							14	24									.7	1.2	70	110
Waverly silt loam							14	25									.5	.6	70	120

[1] Number of days 1 acre will graze a cow, horse, or steer, or 5 hogs, or 7 sheep without injury to the pasture.

In addition to the general management suggested for all crops in the foregoing list, certain management was assumed for each crop in estimating the yields listed in columns B of table 2. A farmer can expect similar yields if he follows this management.

Cotton.—If needed, add enough lime to bring the soil to a pH of 5 or greater. Add 50 to 100 pounds or more of nitrogen per acre and other nutrients according to the result of soil tests. Plant by May 20, use shallow cultivation for weed control, and apply insecticides to control the boll weevil and other insects.

Corn.—Corn should be planted and fertilized at rates that vary according to the expected yields as listed in column B of table 2. On soils that show yields of 85 bushels or more per acre, apply 100 to 130 pounds of nitrogen and plant for a stand of 12,000 to 16,000 plants per acre. On soils that show yields of 60 to 85 bushels per acre, add 75 to 100 pounds of nitrogen and plant for a stand of 8,000 to 12,000 plants per acre. On soils that show yields of 40 to 60 bushels per acre, apply 50 to 75 pounds of nitrogen and plant for a stand of 8,000 plants per acre. The nitrogen can be applied as commercial fertilizer, in barnyard manure, in leguminous crop residue, or in a combination of these.

The plant population and rates of fertilization of corn grown for silage are the same as those of corn grown for grain. To estimate the number of tons of corn silage a soil will produce, divide the number of bushels of corn listed in table 2 by 5. For example, a soil that yields 100 bushels per acre produces approximately 20 tons of silage per acre.

Grain sorghum.—To produce the yields of grain sorghum listed in column B of table 2, add about 60 pounds of nitrogen per acre at planting time. Also apply potash and phosphate according to results of soil tests. Cultivate enough to control weeds.

Soybeans.—If needed, add enough lime to bring the soil to a pH of about 6.5. Add about 60 pounds of K_2O and 30 pounds of P_2O_5, or amounts indicated by soil tests. Early growth will be rapid on most soils if 6 to 10 pounds of nitrogen are applied. Plant between April 20 and May 20 in a well-prepared seedbed. Use a suitable variety of seed that is inoculated with a fresh culture. Cultivate enough to control weeds and grass.

Alfalfa.—To produce the yields of alfalfa listed in column B of table 2, test the soil for its need of lime and mix the amount needed into the soil 2 to 4 months before alfalfa is planted. Apply at seeding and again each year as a topdressing 500 to 600 pounds per acre of 0–10–20 [2] fertilizer and 20 pounds of borax, or the amount determined by soil tests. After seeding, press into the seedbed with a corrugated roller a suitable variety of seed that has been inoculated with a fresh culture. Seed between August 15 and September 15 or between March 1 and April 1. Cut the alfalfa for hay when about one-fourth of the flowers are open, or when the basal shoots appear. Allow the plants to build up a food reserve before the first freezing temperature by not cutting after September 15.

Sericea lespedeza.—If needed, add lime according to the results of soil tests. Also add 60 pounds of K_2O and 60 pounds of P_2O_5 per acre at seeding or amounts as indicated by soil tests. As a topdressing, apply 40 pounds each of K_2O and P_2O annually in spring. Seed in a well-prepared bed that is free of weeds and has been compacted 2 to 3 weeks before seeding. Seeding may be done between April 1 and July 1 but not after May 1 unless the moisture content is favorable. Plant 30 to 40 pounds of scarified, inoculated seed per acre. For high yields of hay, cut the lespedeza when the plants are 12 to 15 inches high; for pasture, keep plants clipped or grazed to about 4 inches.

Wheat or oats.—For the yields of these crops listed in columns B of table 2, add 30 pounds of nitrogen per acre at seeding and another 30 pounds in spring as a topdressing.

To estimate the number of tons of oat hay a soil will produce, divide the number of bushels by 31. For example, a soil that produces 62 bushels of oats will produce 2 tons of oat hay.

Lespedeza (Korean and Kobe).—The yields listed in column B of table 2 are estimates for lespedeza that

[2] Percentages of nitrogen, phosphate (P_2O_5), and potash, respectively.

has been seeded alone in spring on a prepared seedbed and has been fertilized as indicated by the results of soil tests. A good volunteer stand yields about the same as a stand seeded alone. Yields are generally 50 percent lower for lespedeza overseeded in small grain than they are for lespedeza seeded alone. Lespedeza that has been overseeded fails almost completely once in every 2 years. The lespedeza is less likely to fail, and generally yields 80 percent as much as lespedeza seeded alone, if the small grain is grown for hay and receives 60 pounds of nitrogen in a split application. Oats compete with lespedeza more than does barley or wheat and are, therefore, less desirable for overseeding.

Pasture (orchardgrass or fescue and ladino or other whiteclover).—Add 30 pounds of nitrogen at seeding along with phosphate and potash in amounts determined by soil tests. If there is less than 30 percent of clover in the mixture, add 30 pounds of nitrogen each year late in February. Also add each year phosphate and potash as topdressing.

Tons of air-dry forage can be computed from table 2 by dividing the number of cow-acre-days by 53.

Engineering Uses of Soils

Soil is used as construction material in highway pavements, earth embankments, dams, levees, and other engineering structures. All structures except those built on solid rock, regardless of the material of which they are made, rest on soil. Therefore, a large part of soil engineering deals with locating various soils, determining their engineering properties, correlating those properties with the requirements of the job, and selecting the best material for each job.

This soil survey report contains information about the soils of Fayette County that can be used by engineers to—

1. Make soil and land-use studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary estimates of the engineering properties of soils for the planning of agricultural drainage structures, farm ponds, and irrigation systems.
3. Make preliminary evaluations of soil and ground conditions that will aid in selecting highway and airport locations and in planning detailed investigations of the selected locations.
4. Locate gravel and other construction materials.
5. Correlate performance of engineering structures with soil mapping units, and thus develop information that will be useful in designing and maintaining the structures.
6. Determine the suitability of soil units for cross-country movement of vehicles and construction equipment.
7. Supplement information obtained from other published maps and reports, and from aerial photographs, for the purpose of making soil maps and reports that can be readily used by engineers.
8. Make other preliminary estimates for construction purposes of a particular area when laboratory data are not available.

This soil survey will not eliminate the need for sampling and testing for design and construction of a specific engineering work. *It should be used primarily in planning more detailed field surveys to determine the in-place condition of the soil at the proposed construction.* The depth of sampling is generally that of the soil profile and is not adequate for estimating behavior of soil materials in excavations that extend to a greater depth.

At many construction sites, major variations in a soil occur within the depth of the proposed excavation, and several soils may be found within a short distance. The soil maps and profile descriptions in this report as well as the engineering descriptions given in this subsection, should be used in planning detailed surveys of soils at construction sites. Using this information will enable the soils engineer to concentrate on the most suitable soil units. Then a minimum of soil samples will be required for laboratory testing, and an adequate investigation can be made at a minimum cost.

To make the best use of the soil map and the soil survey report, the engineer should know the physical properties of the soil materials and the in-place condition of the soil. After testing the soil materials and observing the behavior of each soil when it is used in engineering structures and foundations, the engineer can anticipate, to some extent, the properties of individual soil units wherever they are mapped.

Some of the terms used by the agricultural soil scientist may not be familiar to the engineers, and some words—for example, soil, clay, silt, sand, and granular—may have a special meaning in soil science. These and other special terms are defined in the Glossary at the back of this report.

Engineering classification systems

Two engineering systems for classifying soils are used in this report, the AASHO and the Unified. Most highway engineers classify soil materials in accordance with the system approved by the American Association of State Highway Officials (*1*). In this system the soil materials are classified in seven principal groups. The groups range from A–1, consisting of gravelly soils of high bearing capacity, to A–7, consisting of clay soils having low strength when wet. Within each group the relative engineering value of the soil material can be indicated by a group index number. Group indexes range from 0 for the best materials to 20 for the poorest. The group index number is shown in parentheses following the soil group symbol. A group index number was assigned only to those soils sampled for laboratory analysis. (See table 3.)

Some engineers prefer the Unified soil classification system (*9*). This system was developed by the Waterways Experiment Station, Corps of Engineers. It identifies soil materials as coarse grained (8 classes), fine grained (6 classes), or highly organic.

The classification of soil material by either the AASHO or the Unified system identifies that soil material accord-

ing to gradation and plasticity characteristics. Either classification permits an engineer to make a quick appraisal of the soil material by comparing it with more familiar soils that have the same classification.

Engineering test data

Soil samples from five extensive soil series were tested according to standard AASHO procedures to help evaluate the soils for engineering purposes. The tests were made by the Tennessee Department of Highways and Public Works. The test data are given in table 3. Because the samples tested were generally obtained at a depth of 6 feet or less, they do not represent materials that are encountered at a greater depth.

The relationship between the moisture content and the density of compacted soil material as determined by the test explained in AASHO Designation: T 99 57 (*1*) is given in table 3 in the columns headed moisture-density. In this compaction test, soil material is compacted into a cylindrical mold several times with a constant compactive effort, each time at a successively higher moisture content. The density, or unit weight, of the compacted soil increases as the moisture content increases until the "optimum moisture content" is reached. After that, the density decreases with each increase in moisture. The highest density obtained in the test is at the optimum moisture content and is the maximum density. This relationship is important in earthwork because, as a rule, optimum stability is obtained if the soil is compacted to about the maximum density when the soil is at or near the optimum moisture content.

Table 3 also gives two engineering classifications for each soil sample. These classifications are based on the liquid limit, the plasticity index, and the data obtained by mechanical analysis. They are briefly described in the subsection "Engineering classification systems."

The results obtained by the mechanical analysis give relative proportions of the different size particles. The content of clay was obtained by the hydrometer method and should not be used in naming soil textural classes.

The liquid limit and the plasticity index indicate the effect of moisture on the consistence of the soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a solid to a semisolid, or plastic state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the material passes from a solid to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and plastic limit. It indicates the range of moisture content within which a soil material is in a plastic condition.

Engineering descriptions and physical properties

Table 4 gives, for each of the mapping units, some of the soil characteristics that are significant in engineering and the engineering classification of the soil materials in the principal horizons.

Figure 11.—**Pit or dugout pond in soil that has a slowly permeable subsoil.**

Depth to the high water table is based on field observations. Permeability is estimated for uncompacted soil and is based on structure, consistence, and texture and on field observations (fig. 11). Only a limited amount of laboratory data is available.

Available water capacity, measured in inches per inch of soil depth, is approximately the total capillary water when the soil is wet to field capacity. It is the amount of water held in the soil between 1/3 atmosphere and 15 atmospheres tension. If the soil is at permanent wilting point, this amount of water will wet it to a depth of 1 foot. The values of available water capacity are computed from laboratory data for some of the soils in table 4, and for the others the values are estimates based on laboratory data for similar soils.

Dispersion refers to the degree to which the soil aggregates disintegrate when they are saturated with water and the rate of this disintegration. Dispersion is estimated on the basis of the structure and texture of the soil.

The shrink-swell potential of a soil is an indication of the change in volume that occurs with a change in moisture content. It is estimated primarily on the basis of the kind and amount of clay the soil contains.

In general, soils classified as CH and A–7 have a high shrink-swell potential. Clean sands and gravels (single-grain structure) and those having small amounts of nonplastic to slightly plastic fines, as well as most other nonplastic to slightly plastic soil materials, have a low shrink-swell potential.

Features affecting engineering work

Table 5 lists, for each soil series, specific features that affect work on highways or in soil and water conservation. These features are not generally known by the engineer unless he has had access to the results of a field investigation. They are, however, significant enough to influence construction practices.

TABLE 3.—*Engineering test data* [1] *for*

Soil name and location	Parent material	Tennessee report No	Depth	Horizon	Moisture-density [2] Maximum density	Moisture-density [2] Optimum moisture
			Inches		*Lb. per cu. ft.*	*Percent*
Falaya silt loam:						
1 mile NW. of Moorman gin and 100 feet S. of gravel road. (Modal)	Alluvium.	91	0–10	A_p	98	14
		93	52–72+	C_3	108	12
3 miles NW. of Rossville in bottom of Shaws Creek. (Clayey profile)	Alluvium.	71	1–13	A_{12}	96	18
		72	13–72+	C	101	16
1½ miles S. of Piperton and ½ mile E. of gravel road. (Sandy C horizon)	Alluvium.	90	0–13	A_p	101	16
		89	13–44	C_1	105	13
		88	44–72+	C_2	108	12
Grenada silt loam:						
1 mile N. of Moorman gin and 200 yards E. of Somerville-Stanton road. (Modal)	Loess.	108	0–5	A_p	94	15
		106	5–16	B_2	98	19
		107	29–40	B_{3m2}	101	16
		105	51–72+	C	102	14
1 mile N. of Somerville and ¼ mile E. of State Route 76. (Shallow profile)	Loess.	81	1–7	A_2	96	15
		95	7–19	B_2	95	18
		94	29–45	B_{3m2}	105	15
		92	55–72+	D	107	14
20 miles SW. of Somerville or ¾ mile S. of Johnson's store on gravel road. (Clayey B horizon)	Loess.	63	0–4	A_p	99	16
		61	9–17	B_{22}	97	17
		62	25–33	B_{3m2}	99	18
		64	44–76	C	105	16
Henry silt loam:						
½ mile N. of Moorman gin and ¼ mile W. of Somerville-Stanton road. (Modal)	Loess.	109	0–6	A_p	99	15
		99	6–18	B_{3m1}	103	15
		98	18–28	B_{3m2}	104	16
		97	58–72+	C_2	102	13
3 miles NW. of Grand Junction, in Hardeman County. (Clayey B and C horizons)	Loess.	73	1–5	A_2	97	14
		75	8–20	B_{3m1}	105	19
		74	20–31	B_{3m2}	99	19
		80	31–72+	C	108	13
2 miles W. of Grand Junction and ½ mile W. of State Route 18. (Sandy B horizon)	Loess.	79	0–10	A_p	100	13
		77	10–22	B_{3m1}	105	13
		78	22–38	C_1	103	16
		76	38–72+	C_2	103	15
Memphis silt loam:						
¾ mile NW. of Moorman gin. (Modal)	Loess over Coastal Plain deposits.	102	0–5	A_p	104	11
		101	9–20	B_{22}	99	20
		100	53–108	C_2	101	15
1 mile N. of La Grange on Somerville-La Grange road. (Clayey D horizon)	Loess over Coastal Plain deposits.	84	0–6	A_p	100	16
		83	9–25	B_2	104	14
		82	48–72+	D_b	106	15
2 miles N. of Mississippi State line on E. side of State Route 18. (Sandy D horizon)	Loess over Coastal Plain deposits	87	0–5	A_p	102	12
		86	14–28	B_{22}	99	17
		85	48–72+	D	98	10
Ruston sandy loam:						
2 miles S. of Williston. (Modal)	Coastal Plain deposits.	96	2–14	A_2	118	8
		104	27–40	B_2	113	11
		103	51–72+	C	107	9

See footnotes at end of table

soil samples taken from 15 soil profiles

Mechanical analysis [3]												Liquid limit	Plasticity index	Classification	
Percentage passing sieve—								Percentage smaller than—							
1-in.	¾-in.	⅜-in.	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 80 (0.18 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.			AASHO [4]	Unified [5]
------	------	------	------	100	100	99	99	97	56	14	10	25	(6)	A-4(8)	ML.
------	------	------	------	100	98	89	85	79	50	17	13	24	(6)	A-4(8)	ML.
------	------	------	------	100	100	99	98	97	90	43	30	38	12	A-6(9)	ML-CL.
------	------	------	------	100	99	98	98	96	80	27	18	32	7	A-4(8)	ML-CL.
------	------	------	------	100	99	94	92	89	61	19	14	27	(6)	A-4(8)	ML.
------	------	------	------	100	98	90	85	81	60	21	14	25	(6)	A-4(8)	ML.
------	------	------	------	100	96	80	71	68	50	16	13	22	(6)	A-4(7)	ML.
------	------	------	------	100	99	98	98	92	50	17	12	32	(6)	A-4(8)	ML.
------	------	------	------	100	100	100	100	97	70	36	28	41	14	A-7-6(10)	ML-CL.
------	------	------	------	100	99	98	98	96	62	23	17	34	5	A-4(8)	ML.
------	------	------	------	100	99	99	98	96	65	24	19	33	8	A-4(8)	ML-CL.
------	------	------	------	100	98	96	94	90	56	19	13	27	(6)	A-4(8)	ML.
------	------	------	------	100	100	99	99	95	74	36	31	40	12	A-6(9)	ML.
100	100	99	99	99	98	95	91	87	56	27	22	32	11	A-6(8)	CL.
[7] 95	94	91	91	89	87	81	64	55	39	29	25	35	19	A-6(9)	CL.
------	------	------	------	100	99	99	98	92	59	19	14	25	(6)	A-4(8)	ML.
------	------	------	------	100	100	99	99	97	72	35	28	40	13	A-6(9)	ML-CL.
------	------	------	------	100	99	99	99	97	68	29	22	37	12	A-6(9)	ML-CL.
------	------	------	------	100	96	94	94	90	57	21	18	31	8	A-4(8)	ML-CL.
------	------	100	100	98	93	92	92	89	41	12	9	24	(6)	A-4(8)	ML.
------	------	------	100	99	93	92	91	88	58	20	16	28	3	A-4(8)	ML.
------	------	------	100	99	94	93	92	89	63	28	23	31	14	A-6(10)	CL.
------	------	------	100	100	98	97	97	94	58	22	15	30	7	A-4(8)	ML-CL.
------	------	------	100	100	99	97	97	92	60	11	7	24	(6)	A-4(8)	ML.
------	------	------	------	100	99	99	99	97	75	40	33	39	18	A-6(12)	CL.
------	------	------	------	100	100	99	99	95	70	32	26	35	13	A-6(9)	ML-CL.
------	------	------	------	100	97	93	91	89	62	28	23	29	8	A-4(8)	ML-CL.
------	------	100	100	95	89	87	86	84	50	14	8	25	(6)	A-4(8)	ML.
------	------	------	100	98	89	87	86	84	60	22	17	27	(6)	A-4(8)	ML
------	------	------	------	100	92	89	88	85	64	27	22	36	10	A-4(8)	ML-CL.
------	------	------	------	100	96	93	90	85	62	27	24	32	11	A-6(9)	ML.
------	------	------	100	100	99	98	98	93	49	20	17	26	(6)	A-4(8)	ML.
------	------	------	------	100	100	100	99	97	71	38	32	41	13	A-7-6(9)	ML.
------	------	------	------	100	100	100	99	97	61	25	19	33	5	A-4(8)	ML.
------	------	------	------	100	99	96	94	91	53	16	13	25	(6)	A-4(8)	ML
------	------	------	------	100	98	92	85	81	65	34	29	37	13	A-6(9)	ML-CL.
------	------	------	------	100	93	76	71	69	55	33	29	36	14	A-6(9)	CL.
------	------	------	------	100	94	82	80	77	43	16	14	27	(6)	A-4(8)	ML.
------	------	------	------	100	98	96	96	95	70	35	29	24	2	A-4(8)	ML.
------	------	------	------	100	61	5	2	1	1	1	1	(6)	(6)	A-3(0)	SP.
------	------	------	------	100	91	57	37	35	24	8	5	14	(6)	A-4(1)	SM.
------	------	------	------	100	91	48	25	25	23	21	21	24	(6)	A-2-4(0)	SM
------	------	------	------	100	93	42	12	12	12	12	12	(6)	(6)	A-2-4(0)	SP-SM.

TABLE 3.—*Engineering test data* [1] *for soil*

Soil name and location	Parent material	Tennessee report No.	Depth	Horizon	Moisture-density [2] Maximum density	Moisture-density [2] Optimum moisture
			Inches		*Lb. per cu. ft.*	*Percent*
Ruston sandy loam—Continued						
3 miles E. of Somerville and 2 miles S. of U.S. Highway No. 64. (Clayey B horizon)	Coastal Plain deposits.	65	2–7	A_2	105	13
		70	12–24	B_2	102	17
		69	34–72	C	113	12
3½ miles SE. of Somerville on N. bank of Hickory Valley road. (Sandy B horizon)	Coastal Plain deposits	67	0–7	A_2	115	10
		68	10–24	B_2	109	13
		66	35–72+	C	101	7

[1] Tests performed by the Tennessee Dept of Highways and Public Works according to standard procedures of the American Association of State Highway Officials (AASHO).

[2] Based on the Moisture-density Relations of Soils Using a 5.5-pound Rammer and a 12-inch Drop, AASHO Designation: T 99–57, Method A.

[3] Mechanical analyses according to the American Association of State Highway Officials Designation: T 88. Results by this procedure frequently may differ somewhat from results that would have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soils.

TABLE 4.—*Estimated*

[Dashed lines indicate mapping unit is

Map symbol	Mapping unit	Depth to seasonally high water table	Description of soil	Depth from surface	Classification USDA texture	Classification Unified	Classification AASHO
		Feet		*Inches*			
CaA	Calloway silt loam, 0 to 2 percent slopes.	[1] 1 to 2	Somewhat poorly drained soils that have a fragipan and developed in loess, 5 to 15 feet thick, over sandy clay loam.	0 to 6	Silt loam	ML or CL	A–4 or A–6
CaB	Calloway silt loam, 2 to 5 percent slopes.			6 to 17	Silt loam	ML or CL	A–4 or A–6
CaB2	Calloway silt loam, 2 to 5 percent slopes, eroded.			17 to 50	Silt loam	ML or CL	A–4 or A–6
CbA	Calloway silt loam, terrace, 0 to 2 percent slopes.	[1 2] 1 to 2	Soils on terraces; underlain by loamy sand in old alluvium that washed from the Coastal Plain.	0 to 6	Silt loam	ML or CL	A–4 or A–6
CbB	Calloway silt loam, terrace, 2 to 5 percent slopes.			6 to 17	Silt loam	ML or CL	A–4 or A–6
CbB2	Calloway silt loam, terrace, 2 to 5 percent slopes, eroded.			17 to 50	Silt loam	ML or CL	A–4 or A–6
Co	Collins silt loam.	0	Nearly level to gently sloping, moderately well drained soils that are in silty recent alluvium washed from loessal areas.	0 to 18	Silt loam	ML	A–4
Cu	Collins silt loam, local alluvium.			18 to 73+	Silt loam	ML	A–4
Cf	Collins fine sandy loam.	0	Moderately well drained soils on bottoms and in local alluvium; soils consist of recent alluvium washed from the Coastal Plain and from loessal areas.	0 to 18	Fine sandy loam.	SM	A–2 or A–4
Cm	Collins fine sandy loam, local alluvium.			18 to 60+	Silt loam with thin lenses of loamy sand.	SM or ML	A–2 or A–4

See footnotes at end of table.

samples taken from 15 soil profiles—Continued

Mechanical analysis [3]												Liquid limit	Plasticity index	Classification	
Percentage passing sieve—								Percentage smaller than—						AASHO [4]	Unified [5]
1-in.	½-in.	⅜-in.	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 80 (0.18 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.				
		100	99	98	91	78	70	67	49	20	14	25	4	A-4(7)	ML-CL.
				100	94	73	61	61	57	43	40	39	15	A-6(8)	ML-CL.
				100	90	48	23	22	21	21	20	24	(6)	A-2-4(0)	SM.
				100	90	38	26	22	12	5	3	(6)	(6)	A-2-4(0)	SM.
				100	91	51	44	43	33	22	21	26	8	A-4(2)	SC.
			100	99	85	24	6	4	3	3	3	(6)	(6)	A-3(0)	SP-SM.

[4] Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (Pt. 1, Ed. 7): The Classification of Soils and Soil Aggregate Mixtures for Highway Construction Purposes, AASHO Designation: M 145-49.

[5] Based on the Unified Soil Classification System, Technical Memorandum No. 3-357, v. 1, Waterways Experiment Station, Corps of Engineers, March 1953.

[6] Nonplastic.

[7] 1½-inch sieve passes 98 percent, 2-inch sieve passes 99 percent, and 3-inch sieve passes 100 percent.

physical properties of soils

variable and properties were not estimated]

Percentage passing sieve—			Selected characteristics significant to engineering					
No. 4	No. 10	No. 200	Permeability	Structure	Available water capacity	Reaction	Dispersion	Shrink-swell potential
			Inches per hour		*Inches per inch of soil*	*pH*		
100	95 to 100	60 to 90	0. 8 to 2. 5	Granular	0. 20 to 0. 25	5. 1 to 5. 5	High	Low.
100	95 to 100	75 to 90	0. 8 to 2. 5	Blocky	0. 20 to 0. 25	5. 1 to 5. 5	Moderate	Moderate.
100	95 to 100	75 to 90	<0. 2	Blocky	0. 15 to 0. 20	5. 1 to 5. 5	Moderate	Moderate.
100	95 to 100	60 to 90	0. 8 to 2. 5	Granular	0. 20 to 0. 25	5. 1 to 5. 5	High	Low.
100	95 to 100	75 to 90	0. 8 to 2. 5	Blocky	0. 20 to 0. 25	5. 1 to 5. 5	Moderate	Moderate.
100	95 to 100	75 to 90	<0. 2	Blocky	0. 15 to 0. 20	5. 1 to 5. 5	Moderate	Moderate.
100	100	90 to 100	0. 8 to 2. 5	Granular	0. 20 to 0. 25	5. 1 to 5. 5	Moderate	Low.
100	100	90 to 100	0. 2 to 0. 8	Massive	0. 20 to 0. 25	5. 1 to 5. 5	Moderate	Low.
100	95 to 100	10 to 40	0. 8 to 2. 5	Granular	0. 15 to 0. 20	5. 1 to 5. 5	High	Low.
100	95 to 100	50 to 75	0. 8 to 2. 5	Variable	0. 15 to 0. 20	5. 1 to 5. 5	High	Low.

674-748—64——4

TABLE 4.—*Estimated physical*

Map symbol	Mapping unit	Depth to seasonally high water table	Description of soil	Depth from surface	Classification		
					USDA texture	Unified	AASHO
		Feet		*Inches*			
Fm Fu	Falaya silt loam Falaya silt loam, local alluvium	0	Nearly level to gently sloping, somewhat poorly drained soils on bottoms and in local alluvium; soils in recent silty alluvium, 6 to 30 feet thick, over sandy material.	0 to 72+	Silt loam	ML	A-4
Fa Ff	Falaya fine sandy loam. Falaya fine sandy loam, local alluvium.	0	Somewhat poorly drained soils on bottoms and in recent alluvium, soils in materials washed from the Coastal Plain and from loessal areas.	0 to 12 12 to 72	Fine sandy loam. Silt loam with thin lenses of loamy sand to fine sandy loam.	SM ML or SM	A-2 or A-4 A-2 or A-4
GaA GaB GaB2 GaB3 GaC GaC2 GaC3 GaD GaD3	Grenada silt loam, 0 to 2 percent slopes. Grenada silt loam, 2 to 5 percent slopes Grenada silt loam, 2 to 5 percent slopes, eroded. Grenada silt loam, 2 to 5 percent slopes, severely eroded Grenada silt loam, 5 to 8 percent slopes. Grenada silt loam, 5 to 8 percent slopes, eroded. Grenada silt loam, 5 to 8 percent slopes, severely eroded. Grenada silt loam, 8 to 12 percent slopes. Grenada silt loam, 8 to 12 percent slopes, severely eroded	[1] 1½ to 2	Moderately well drained soils that have a fragipan and developed in loess, 5 to 15 feet thick, over sandy clay loam of the Coastal Plain	0 to 5 5 to 16 16 to 40 40 to 72	Silt loam Silt loam Silt loam Silt loam	ML ML or CL ML or CL ML	A-6 or A-7 A-6 A-4 A-4
GbA GbB GbB2 GbB3 GbC2 GbC3	Grenada silt loam, terrace, 0 to 2 percent slopes. Grenada silt loam, terrace, 2 to 5 percent slopes. Grenada silt loam, terrace, 2 to 5 percent slopes, eroded. Grenada silt loam, terrace, 2 to 5 percent slopes, severely eroded. Grenada silt loam, terrace, 5 to 8 percent slopes, eroded Grenada silt loam, terrace, 5 to 8 percent slopes, severely eroded.	[1,2] 1½ to 2	Soils on terraces; underlain by loamy sand in old alluvium that washed from the Coastal Plain.	0 to 5 5 to 16 16 to 40 40 to 72	Silt loam Silt loam Silt loam Silt loam	ML ML or CL ML ML	A-4 A-6 A-4 A-4
GgC GgD	Grenada-Gullied land complex, 5 to 8 percent slopes Grenada-Gullied land complex, 8 to 12 percent slopes.		Gullied Grenada soils				
Gn	Gullied land, sandy.	30+	Soils with gullies that cover 10 to 100 percent of surface.		Sandy clay loam to loamy sand	SM, SC, ML or CL.	A-2, A-4, or A-6
Gs	Gullied land, silty.	30+	Soils with gullies that cover 10 to 100 percent of surface.		Silt loam	ML or CL	A-6 or A-7

See footnotes at end of table.

properties of soils—Continued

Percentage passing sieve—			Selected characteristics significant to engineering					
No. 4	No. 10	No. 200	Permeability	Structure	Available water capacity	Reaction	Dispersion	Shrink-swell potential
			Inches per hour		*Inches per inch of soil*	*pH*		
100	100	10 to 99	0.8 to 2.5	Granular	0.20 to 0.25	5.1 to 5.5	Moderate	Low.
100	95 to 100	10 to 40	0.8 to 2.5	Granular	0.15 to 0.20	5.1 to 5.5	High	Low.
100	95 to 100	50 to 75	0.2 to 0.8	Variable	0.15 to 0.20	5.1 to 5.5	High	Low.
100	100	90 to 100	0.8 to 2.5	Granular	0.20 to 0.25	5.1 to 5.5	High	Low.
100	100	95 to 100	0.8 to 2.5	Blocky	0.20 to 0.25	5.1 to 5.5	Moderate	Moderate.
100	100	90 to 100	<0.2	Blocky	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	100	90 to 100	0.8 to 2.5	Massive	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	100	90 to 100	0.8 to 2.5	Granular	0.20 to 0.25	5.1 to 5.5	High	Low.
100	100	95 to 100	0.8 to 2.5	Blocky	0.20 to 0.25	5.1 to 5.5	Moderate	Moderate.
100	100	90 to 100	<0.2	Blocky	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	100	90 to 100	0.8 to 2.5	Massive	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
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100	95 to 100	30 to 75	0.8 to 2.5	---	---	5.1 to 5.5	Moderate to low	Moderate.
100	95 to 100	50 to 95	0.8 to 2.5	---	---	5.1 to 5.5	Moderate to low	Moderate.

TABLE 4. *Estimated physical*

Map symbol	Mapping unit	Depth to seasonally high water table	Description of soil	Depth from surface	Classification: USDA texture	Classification: Unified	Classification: AASHO
		Feet		*Inches*			
He Ho Ht	Henry silt loam. Henry silt loam, overwash. Henry silt loam, terrace.	[1] [3] 0 to 2	Level to gently sloping, poorly drained soils that have a fragipan and developed in loess, 5 to 15 feet thick, over sandy clay loam of the Coastal Plain. Soil on terraces is underlain by loamy sand in old alluvium washed from the Coastal Plain.	0 to 6 6 to 18 18 to 28 28 to 72	Silt loam Silt loam Silty clay loam. Silt loam	ML ML or CL ML or CL ML	A-4 A-4 or A-6 A-4 or A-6 A-4
LbB LbC LbD LcB3 LcC3 LcD3	Lexington silt loam, 2 to 5 percent slopes. Lexington silt loam, 5 to 8 percent slopes. Lexington silt loam, 8 to 12 percent slopes. Lexington silty clay loam, 2 to 5 percent slopes, severely eroded. Lexington silty clay loam, 5 to 8 percent slopes, severely eroded. Lexington silty clay loam, 8 to 12 percent slopes, severely eroded.	30+	Well-drained soils that developed on uplands in thin loess over sandy clay loam of the Coastal Plain. Severely eroded soils have lost most of the surface layer	0 to 5 5 to 36 36 to 60+	Silt loam Silty clay loam. Sandy clay loam.	ML or CL CL SM or SC	A-4 A-6 or A-7 A-2 or A-4
LeD LeD3 LeF LeF3	Lexington-Ruston complex, 8 to 12 percent slopes. Lexington-Ruston complex, 8 to 12 percent slopes, severely eroded. Lexington-Ruston complex, 12 to 30 percent slopes Lexington-Ruston complex, 12 to 30 percent slopes, severely eroded.	30+	Lexington soils: Well-drained soils that formed on uplands in thin loess over sandy clay loam of the Coastal Plain. Uneroded or slightly eroded soils have a silt loam surface layer; severely eroded soils have a silty clay loam surface layer.	0 to 5 5 to 36 36 to 60+	Silt loam Silty clay loam. Sandy clay loam.	ML or CL CL SM or SC	A-4 A-6 or A-7 A-2 or A-4
			Ruston soils: Well-drained, red soils that formed on uplands in sandy sediments of the Coastal Plain. Uneroded or slightly eroded soils have a sandy loam surface layer; severely eroded soils have a sandy clay loam surface layer.	0 to 14 14 to 40 40 to 72+	Sandy loam Sandy clay loam. Loamy sand	SM SM or SC SP or SM	A-4 A-4 or A-2 A-2 or A-3
LfD LfF	Lexington-Ruston-Gullied land complex, 8 to 12 percent slopes. Lexington-Ruston-Gullied land complex, 12 to 30 percent slopes.	[4]	Gullied Lexington and Ruston soils.				
LoA LoB LoB3 LoC	Loring silt loam, 0 to 2 percent slopes. Loring silt loam, 2 to 5 percent slopes. Loring silt loam, 2 to 5 percent slopes, severely eroded. Loring silt loam, 5 to 8 percent slopes.	[1] 2 to 2½	Well drained to moderately well drained soils that have a weak fragipan and formed on uplands in loess, 5 to 15 feet thick, over sandy clay loam of the Coastal Plain.	0 to 6 6 to 28 28 to 42 42 to 72	Silt loam Silty clay loam. Silt loam Silt loam	ML ML or CL ML ML	A-4 A-4 or A-6 A-4 A-4

See footnotes at end of table.

properties of soils—Continued

Percentage passing sieve—			Selected characteristics significant to engineering					
No. 4	No. 10	No. 200	Permeability	Structure	Available water capacity	Reaction	Dispersion	Shrink-swell potential
			Inches per hour		*Inches per inch of soil*	*pH*		
100	95 to 100	85 to 100	0.2 to 0.8	Granular	0.20 to 0.25	5.1 to 5.5	High	Low.
100	95 to 100	85 to 100	<0.2	Blocky	0.20 to 0.25	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	85 to 100	<0.2	Blocky	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	85 to 100	0.2 to 0.8	Massive	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	85 to 100	0.8 to 2.5	Granular	0.20 to 0.25	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	75 to 100	0.8 to 2.5	Blocky	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	10 to 50	0.8 to 2.5	Massive	0.10 to 0.15	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	85 to 100	0.8 to 2.5	Granular	0.20 to 0.25	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	75 to 100	0.8 to 2.5	Blocky	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	10 to 50	0.8 to 2.5	Massive	0.10 to 0.15	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	25 to 75	2.4 to 5.0	Weak, granular	0.15 to 0.20	5.1 to 5.5	High	Low.
100	95 to 100	25 to 65	0.8 to 2.5	Blocky	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	5 to 25	5.0 to 10.0	Single grain	0.05 to 0.10	5.1 to 5.5	High	Low.
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100	100	95 to 100	0.8 to 2.5	Granular	0.25 to 0.30	5.1 to 5.5	Moderate	Low.
100	100	95 to 100	0.8 to 2.5	Blocky	0.25 to 0.30	5.1 to 5.5	Moderate	Moderate.
100	100	95 to 100	0.2 to 0.8	Blocky	0.20 to 0.25	5.1 to 5.5	Moderate	Low.
100	100	95 to 100	0.2 to 0.8	Massive	0.20 to 0.25	5.1 to 5.5	Moderate	Low.

TABLE 4.—*Estimated physical*

Map symbol	Mapping unit	Depth to seasonally high water table	Description of soil	Depth from surface	Classification		
					USDA texture	Unified	AASHO
		Feet		*Inches*			
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded.						
LoD	Loring silt loam, 8 to 12 percent slopes.						
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded.						
LoE	Loring silt loam, 12 to 20 percent slopes.						
LoE3	Loring silt loam, 12 to 20 percent slopes, severely eroded.						
LgD	Loring-Gullied land complex, 5 to 12 percent slopes.	(4)	Gullied Loring soils				
LgE	Loring-Gullied land complex, 12 to 20 percent slopes.						
MeA	Memphis silt loam, 0 to 2 percent slopes.	30+	Well-drained soils that formed on uplands in loess, 5 to 15 feet thick, over sandy clay loam of the Coastal Plain. Severely eroded soils have lost most of the surface soil.	0 to 5 5 to 20 20 to 72+	Silt loam Silty clay loam. Silt loam	ML ML or CL ML	A-4 A-4, A-6 or A-7. A-4
MeB	Memphis silt loam, 2 to 5 percent slopes.						
MeC	Memphis silt loam, 5 to 8 percent slopes.						
MeD	Memphis silt loam, 8 to 12 percent slopes.						
MfB3	Memphis silty clay loam, 2 to 5 percent slopes, severely eroded.						
MfC3	Memphis silty clay loam, 5 to 8 percent slopes, severely eroded.						
MfD3	Memphis silty clay loam, 8 to 12 percent slopes, severely eroded.						
MgD	Memphis-Gullied land complex, 5 to 12 percent slopes.		Gullied Memphis soils				
MgE	Memphis-Gullied land complex, 12 to 20 percent slopes.						
RdF	Ruston sandy loam, 12 to 30 percent slopes.	30+	Well-drained, red soils formed on uplands in sandy sediments of the Coastal Plain.	0 to 14 14 to 40 40 to 72+	Sandy loam Sandy clay loam. Loamy sand	SM or ML SM, SC or CL. SP or SM	A-2 or A-4 A-4 or A-2 A-2 or A-3
RcF3	Ruston sandy clay loam, 12 to 30 percent slopes, severely eroded.						
ReF	Ruston-Eustis complex, 12 to 30 percent slopes.	30+	Eustis soils: Very sandy, somewhat excessively drained soils formed on uplands in sediments of the Coastal Plain. (Ruston soils described for Ruston sandy loam.)	0 to 4 4 to 17 17 to 48+	Loamy sand Loamy sand Loamy sand	SP or SM SP or SM SP or SM	A-2 or A-4 A-2 or A-4 A-2 or A-4
Sa	Sandy alluvial land.	0 to 5	Sandy material washed from gullies and deposited on bottoms, or local alluvium deposited downstream.	0 to 48+	Loamy sand	SP or SM	A-2 or A-4

See footnotes at end of table.

properties of soils—Continued

Percentage passing sieve—			Selected characteristics significant to engineering					
No. 4	No. 10	No. 200	Permeability	Structure	Available water capacity	Reaction	Dispersion	Shrink-swell potential
			Inches per hour		*Inches per inch of soil*	*pH*		
100	100	95 to 100	0.8 to 2.5	Granular	0.25 to 0.30	5.1 to 6.0	Moderate	Low.
100	100	95 to 100	0.8 to 2.5	Blocky	0.25 to 0.30	5.1 to 6.0	Moderate	Moderate.
100	100	95 to 100	0.8 to 2.5	Massive	0.25 to 0.30	5.1 to 6.0	Moderate	Moderate.
100	95 to 100	25 to 75	2.4 to 5.0	Weak, granular	0.15 to 0.20	5.1 to 5.5	High	Low.
100	95 to 100	25 to 65	0.8 to 2.5	Blocky	0.15 to 0.20	5.1 to 5.5	Moderate	Moderate.
100	95 to 100	5 to 25	5.0 to 10.0	Single grain	0.05 to 0.10	5.1 to 5.5	High	Low.
100	75 to 100	5 to 50	5.0 to 10.0	Single grain	0.05 to 0.10	5.1 to 5.5	High	Low.
100	75 to 100	5 to 40	5.0 to 10.0	Single grain	0.05 to 0.10	5.1 to 5.5	High	Low.
100	75 to 100	5 to 25	5.0 to 10.0	Single grain	0.05 to 0.10	5.1 to 5.5	High	Low.
100	75 to 100	5 to 50	5.0 to 10.0	Single grain	0.05 to 0.10	5.1 to 5.5	High	Low.

TABLE 4.—*Estimated physical*

Map symbol	Mapping unit	Depth to seasonally high water table	Description of soil	Depth from surface	Classification		
					USDA texture	Unified	AASHO
		Feet		*Inches*			
Sw	Swamp.	0	Poorly drained soils that are on bottoms and are ponded all of the time.	0 to 72+	Sandy loam to heavy silt loam.	SM to ML or CL.	A 2 or A 4 or A-6.
Vb Vc	Vicksburg fine sandy loam. Vicksburg fine sandy loam, local alluvium.	0	Well-drained soils on bottoms in recent alluvium consisting of mixed materials that washed from loessal areas and the Coastal Plain.	0 to 20	Fine sandy loam.	SM or ML	A 2 or A-4
				20 to 72	Silt loam	ML or SM	A 2 or A 4
Vk Vu	Vicksburg silt loam. Vicksburg silt loam, local alluvium.	0	Well-drained soils on bottoms in recent alluvium consisting of silty material that washed from loessal uplands.	0 to 72+	Silt loam	ML	A-4
Wa	Waverly fine sandy loam.	0	Poorly drained soil on flood plains in recent alluvium consisting of mixed sandy and silty materials that washed from loessal areas and the Coastal Plain.	0 to 10	Fine sandy loam.	SM or ML.	A 4
				10 to 72+	Silt loam	ML	A 4
Wv	Waverly silt loam.	0	Poorly drained soil in recent silty alluvium that commonly overlies an old, poorly drained soil that formed in loess and has a fragipan.	0 to 72+	Silt loam	ML or CL	A-4 or A-6.

[1] Perched water table above a fragipan.
[2] Permanent water table at depth of 5 to 6 feet.

The location of secondary roads in areas where the soils are sloping, moderately steep, or steep may be influenced by the kind of material underlying the soils. In all the soils of Fayette County, bedrock is more than 30 feet deep. Poor material within or slightly below the subgrade should be considered. For all highways, the engineer needs to investigate the likelihood of slides or seepage water. In constructing reservoirs, spots of rapidly permeable sand like that in Calloway and other soils should be cut out and replaced or should be coated with less pervious material.

In most of the county earthwork is difficult during prolonged wet periods, but the better drained, coarse-textured soils can be excavated, hauled, and compacted. The silty and clayey materials hold so much water during wet periods that they cannot be readily drained to the moisture content most favorable for compaction; therefore, they are rated poor.

A rating for the suitability of each soil as material for subgrade and for road fill is given in table 5. Generally, the most desirable materials are coarse textured and easily drained. Natural materials that are suitable for base courses and for road fill are not plentiful in the county. Most suitable are the sandy substrata that occur in small areas throughout the county and the gravelly substrata in the western part.

The suitability of the soil materials for road subgrade and road fill depends mainly on the texture of the soil material and its natural water content. Highly plastic soil materials are rated *poor* for road subgrade and *poor* or *fair* for road fill depending on the natural water content of the soil materials, and the ease with which one can move, dry, and compact them. Soils consisting primarily of fine sands or silts, and other highly erodible soils, require moderately gentle slopes, close moisture control during compaction, and a fast-growing cover of vegetation on side slopes to prevent erosion. Such soils are rated *fair* for road subgrade and *poor* to *fair* for road fill.

Gravel of the Coastal Plain in this county may be used economically for secondary and county roads, but normally it is not durable enough to be used in concrete structures or for base material in primary roads. Much more satisfactory is crushed limestone from outside the county, but the gravel in this county can be used under crushed limestone to decrease the amount of limestone required.

Also in table 5 are ratings for each soil as a source of topsoil and of sand and gravel. Since in most soils the

properties of soils—Continued

Percentage passing sieve —			Selected characteristics significant to engineering					
No. 4	No. 10	No 200	Permeability	Structure	Available water capacity	Reaction	Dispersion	Shrink-swell potential
			Inches per hour		*Inches per inch of soil*	*pH*		
100	95 to 100	25 to 100						
100	95 to 100	25 to 75	0. 8 to 2. 5	Granular	0. 20 to 0. 25	5. 1 to 6. 0	High	Low.
100	95 to 100	25 to 75	0. 8 to 2. 5	Variable	0. 20 to 0. 25	5. 1 to 6. 0	High	Low.
100	100	95 to 100	0. 2 to 0. 8	Granular	0. 20 to 0. 25	5. 1 to 6. 0	Moderate	Low.
100	95 to 100	40 to 100	<0. 3	Granular	0. 15 to 0. 20	5. 1 to 5. 5	High	Low.
100	95 to 100	75 to 100	0. 2 to 0. 8	Massive	0. 20 to 0. 25	5. 1 to 5. 5	High	Low.
100	100	95 to 100	0. 2 to 0. 8	Weak, granular	0. 20 to 0. 25	5. 1 to 5. 5	Moderate	Moderate.

[3] Permanent water table at depth of 5 feet or more.
[4] Variable.

original surface soil is less than 7 inches thick and may even be washed away, the rating for these soils as a source of topsoil is for the material below the thin surface layer. The rating, however, applies to the entire soil profile in the Vicksburg, Collins, Falaya, and other young soils, and in a few other soils that do not have very distinct horizons.

Table 5 also lists soil features that affect engineering practices and agricultural structures. Soil features that affect the vertical alinement of highways include (a) instability; (b) presence of highly plastic clays or highly erodible soils in cut sections; (c) presence of seepage zones; (d) high water table; and (e) flooding. Many soils in Fayette County have a seasonally high water table and need an embankment high enough to keep the roadway above high water. Also, many soils on bottoms and low terraces are flooded occasionally and need an embankment that protects the roadway. Soils in local alluvium generally have subsurface seepage at the base of slopes and need interceptor ditches or underdrains. Seepage may cause slumping or sliding.

Farm ponds may not hold water if the substratum is permeable. Also, materials for the embankment may be unstable or insufficient.

Wildlife and Fish [3]

Game and fish were important sources of food for the settlers of Fayette County, but agriculture has long ago met the people's need for food. Hunting and fishing continue, but the emphasis is now on recreation.

Soils, plants, and water can be managed to increase wildlife and fish by providing adequate food, shelter, and water. Formerly these essentials for wildlife were not intentionally provided by agriculture. If an area had ample food, cover, and water to meet the need of the animal, the animal survived; otherwise, it perished or moved elsewhere.

Many kinds of wildlife are found in Fayette County, but those hunted most are deer, rabbits, squirrels, bobwhites, doves, wild ducks, and wild geese. Many kinds of nongame birds are important because most of them eat harmful insects. Both game birds and nongame birds depend on farmlands for food, nesting, and shelter.

Wild animals need different kinds of food and cover. Some animals spend all of their time in the woods, others prefer open fields, and many prefer a combina-

[3] This subsection was written by FLOYD R. FESSLER, biologist, Soil Conservation Service.

TABLE 5.—*Engineering*

Soil series and map symbol[1]	Adaptability to winter grading	Suitability of soil material for—		Suitability as source of—	
		Road subgrade	Road fill	Topsoil	Sand and gravel
Calloway (CaA, CaB, CaB2, CbA, CbB, CbB2).	Poor	Fair	Poor to fair	Fair to depth of 15 inches.	Generally not suitable; poorly graded sand below depth of 5 to 15 feet; on terraces, sand may be suitable below depth of 5 to 15 feet.
Collins (Cf Cm, Co, Cu)	Poor	Poor	Poor to fair	Fair	Not suitable
Falaya (Fa, Ff, Fm, Fu)	Poor	Poor	Poor to fair	Fair	Not suitable
Grenada (GaA, GaB, GaB2 GaB3, GaC, GaC2, GaC3, GaD, GaD3, GbA, GbB, GbB2, GbB3, GbC2, GbC3).	Poor	Fair	Poor to fair	Fair to depth of 2 feet.	Generally not suitable; on terraces, sand may be suitable below depth of 5 to 15 feet.
Henry (He, Ho, Ht)	Poor	Fair	Poor to fair	Poor	Not suitable
Lexington (LbB, LbC, LbD, LcB3, LcC3, LcD3).	Fair	Fair	Poor to fair above 3 inches; fair to good below 3 inches.	Fair	Not suitable; poorly graded sand below depth of 3½ feet.
Loring (LoA, LoB, LoB3, LoC, LoC3, LoD, LoD3, LoE, LoE3).	Fair to poor	Fair to poor	Poor to fair	Fair	Not suitable
Memphis (MeA, MeB, MeC, MeD, MfB3, MfC3, MfD3).	Fair	Fair	Poor to fair	Fair	Not suitable
Ruston (RcF3, RdF, ReF).	Good	Good	Good	Fair to poor	Fair below 3 to 4 feet
Eustis part of Ruston–Eustis complex (ReF).	Good	Good	Good	Poor	Fair to poor
Vicksburg (Vb, Vc, Vk, Vu).	Poor	Fair	Fair	Fair to good	Not suitable
Waverly (Wa, Wv)	Poor	Fair	Poor to fair	Fair	Not suitable

[1] Interpretation of the soil series in a complex can be found by referring to the respective series. Complexes are not listed.

tion of woods and open fields. Ducks and other water-loving birds need areas of open water. Following is a summary of the food and cover that should be provided for the more important wildlife in Fayette County.

Deer: In Fayette County deer stay in or near large wooded areas. The browse in woods can be supplemented by seeding nutritious plants in open areas for grazing. Because deer drink water frequently, watering places must be provided if they are not available.

Rabbit: Because they are the primary food of many predators, rabbits need brushy cover in which to hide or escape. If clover, wheat, and other crops that have green foliage in winter are seeded near the brushy cover, rabbits will have food as well as cover, and they will increase in number.

Squirrel: Choice foods of this game animal are acorns, black cherry, corn, mulberry, pecans, walnuts, and other nuts and fruits. Any hardwood area will support squirrels if it produces choice foods.

Bobwhite: This bird feeds in open farm areas but needs woods or brush for cover. Choice foods include acorns, lespedeza (bicolor, common, Korean, and japonica), partridgepeas, soybeans, tickclover, and the seeds of other legumes and of grasses and weeds. The bobwhite also eats insects. The food must be close to sheltering vegetation so that, while feeding, the birds are protected from predators, the sun, and bad weather.

Dove: This bird prefers to pick food off ground that is not covered by excessive vegetation. It does not eat insects. Choice foods are browntop millet, corn, cowpeas, oats, pokeberry seeds, wheat, and a few other grass and weed seeds.

Wild ducks: Ducks prefer to feed in water. Choice foods are acorns, browntop millet, corn, Japanese millet,

interpretations of soils

Soil features affecting—					
Vertical alinement for highways	Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions
	Reservoir area	Embankment			
Seasonally high water table.[2]	Sandy and porous material below depth of 5 to 15 feet.	Silty material with low stability.	Slow permeability below depth of about 20 inches.	Slow permeability below depth of 20 inches; shallow root penetration.	Nearly level to gentle slopes; fragipan.
High water table	High water table	Silty material with low stability.	High water table; slow internal drainage.	High water table	Nearly level.
High water table	High water table	Silty material	High water table	High water table	Nearly level.
Seasonally high water table.[2] Possible seepage in cut slopes.[3]	Seasonally high water table.[2]	Silty material with low stability.	Slow permeability below depth of about 2 feet.	Nearly level to strong slopes.	Nearly level to strong slopes; fragipan.
Seasonally high water table.[2]	Seasonally high water table.[2]	Silty material with low stability.	Slow permeability	Slow permeability below depth of 20 inches; shallow root penetration.	Nearly level to gentle slopes; fragipan.
----	Sandy material below depth of 3½ feet.	Sandy material below depth of 3½ feet.	Good drainage, sandy material below depth of 3½ feet.	Sandy and porous layer below depth of 3½ feet.	Gentle to strong slopes; well drained.
Erodible on cut slopes.	Sandy material below depth of 5 to 15 feet.	Silty material with low stability.	Slow permeability below depth of 30 inches.	Slow permeability below depth of 30 inches.	Nearly level to moderately steep slopes.
Erodible on cut slopes.	Sandy material below depth of 5 to 15 feet.	Silty material with low stability.	Good drainage; artificial drainage not needed.	Good drainage; artificial drainage not needed.	Nearly level to moderately steep slopes.
In places, erodible on cut slopes.	Loose sand below depth of 3 feet.	Sandy material; loose sand below depth of 3 feet.	Good drainage; loose sand below depth of 3 feet.	Rapid permeability	Strong slopes, sandy.
In places, erodible on cut slopes.	Loose sand	Sandy material; loose sand.	Somewhat excessive drainage; loose sand.	Rapid permeability	Strong slopes; sandy.
High water table	High water table	Silty material with low stability.	Good drainage, high water table.	High water table	Nearly level slopes.
High water table	High water table	Silty material with low stability.	High water table; few outlets	High water table	Nearly level slopes.

[2] Fragipan (compact layer) causes high water table during wet periods.

and smartweed. The food may be grown in fields or in wooded areas, which are flooded in fall. This practice is feasible only on land that has slopes of less than 2 percent. The soil should be slowly permeable or should have a water table that is naturally or artificially high from October to March. Soils suitable for this use in Fayette County are the Calloway, Falaya, Henry, and Waverly.

Wild geese: These migratory birds feed in winter on growing clover, rye, ryegrass, and wheat. They also need corn and other grain, as well as water, from the time they arrive from the north until they return.

Fish: Ponds, lakes, and reservoirs can be built throughout the county and can be stocked with fish. Fish suitable for stocking are largemouth bass, bluegill, red-ear sunfish, channel catfish, buffalo fish, and bait minnows. Fish production varies according to the available food, which depends on the fertility of the water.

Use of Soils as Woodland [4]

A vast, unbroken forest that contained some of the finest hardwoods in Tennessee once covered the uplands and bottom lands of Fayette County. On the uplands were many kinds of trees, including yellow-poplar, white and red oaks, black walnut, and hickory. Along the streams and in the bottom lands were oak, cottonwood, cypress, gum, hickory, and beech. But most of the original stands have been logged, destroyed by burning, or damaged by livestock.

As early as 1890 the western part of the county was logged in scattered operations. Not until the railroads were built could profits be made by cutting and

[4] This subsection was written by C. E. Burger, woodland conservationist, Soil Conservation Service.

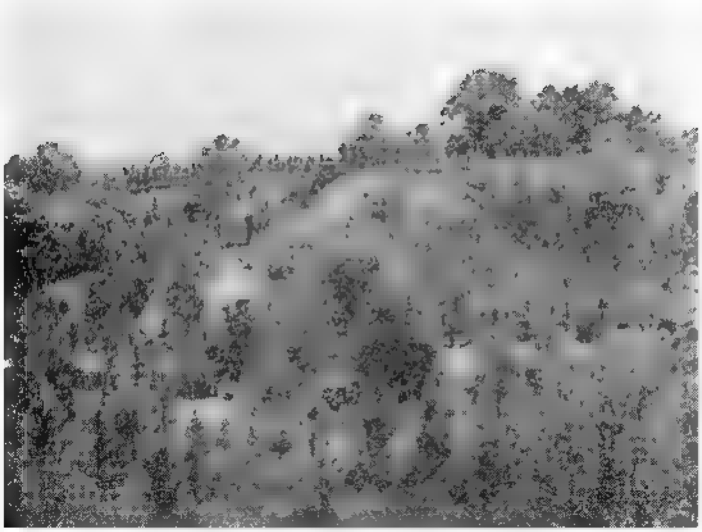

Figure 12.—Stand of shortleaf pine 4 years old on Gullied land.

Figure 13.—Pines interplanted among cull hardwoods. Later the cull hardwoods will be girdled or poisoned.

transporting big trees. Then the only trees cut were big, knot-free white oak, cypress, and cottonwood. Red oak, redgum, sycamore, and other hardwoods were not cut extensively until 1904. Logging operations continued for 25 years, and in this period the best price received was $20 per thousand board feet.

The hardwoods and cypress cut today are from second-growth stands. These stands furnish timber for 12 mobile sawmills and wood-using plants that operate in the county and give employment when men are not needed in the field.

For many years woodland was commonly "burned off" to provide better grazing for livestock. Since 1953, however, much progress has been made in fire protection. Fayette County and the State Division of Forestry cooperate in a fire control program that has reduced the number of wildfires and the acreage damaged by fire.

Because farmers have improved their pastures and have controlled grazing in woodland, the damage caused by grazing livestock has been reduced. Damage by insects and diseases is not a serious problem.

Prior to 1951, planting of forest tree seedlings was not extensive. Between 1951 and 1960, more than five million tree seedlings were planted. On Marys Creek in the Pilot Watershed Project in Fayette County, 788 acres of critical areas and other land were planted to pines and yellow-poplar (fig. 12).

The continuous production of trees will depend on the management of woodland, including the protection of trees from fire and excessive grazing. The wooded bottom lands are better suited to hardwoods than to pines and are mainly in hardwoods. Both hardwoods and pines grow on uplands and can be managed in a well-rounded program of woodland use.

General practices of woodland management

Important in managing woodland are (1) protection from fire; (2) protection from excessive grazing; and (3) improvement of stands by removing undesirable trees, by leaving seed trees, and by preventing competing plants from encroaching (fig. 13).

Unless trees are protected from fire, the farmers' efforts in reforestation and in sound cutting practices will be wasted. Effective fire protection requires continuous educational measures and fire prevention practices, as well as the cooperation of landowners.

Farm woodlands that are continually and excessively grazed cannot grow trees profitably. Grazing damages the soil. If a loose or friable soil and its covering of leafmold are disturbed, and much of the young growth is destroyed by grazing, the soil dries, is sun baked, and is not suitable for natural restocking by desirable trees. Also, constant trampling by livestock compacts the soil. The loss of soil moisture in open, heavily grazed woodlands is an important reason why trees fail to regenerate satisfactorily.

In areas where oaks are dominant, red oak should be encouraged to regenerate. It grows faster than the other oaks on good soils. Because of its high value, white oak should also be encouraged. Pines grow well on a wider range of soils than hardwoods, but they grow better on the good soils. The suitability of soils for different kinds of trees is covered in the subsection "Woodland Suitability Groups of Soils."

Practices are needed in Fayette County to improve stands and increase wood products. These practices should provide cutting or deadening trees not suited to the site, crooked and other undesirable trees, and trees that have been damaged by fire, insects, and disease. A better stand will be produced if trees are cut after the acorn or other seed has been produced and, in harvest cutting, if a few trees are left to produce seed for natural restocking.

On good sites where stands of mixed hardwoods are opened too rapidly, grasses and brush may invade the

stand and compete seriously with seedlings. This competition can be lessened by cutting trees systematically so that openings are controlled and enough desirable trees that are well distributed are left to increase in growth and reseed the area.

Easily recognized benefits from good woodland management are increased lumber, pulpwood, and other wood products. Not so easily recognized, however, are the benefits that come from using idle land or improving the use of eroded land; from better protection of watersheds; and from better habitats for woodland wildlife.

Woodland suitability groups of soils

Management of woodland can be planned effectively if soils are grouped according to those characteristics that affect the growth of trees and management of stands. For this reason, the soils of Fayette County have been placed in eight woodland suitability groups. Each group consists of soils that have about the same suitability for wood crops, require about the same management, and have about the same potential productivity.

Listed in table 6, and later described in the text, are the eight woodland suitability groups in the county. The potential productivity of selected trees is expressed as a site index. The site index is the average height of the dominant and codominant trees in a stand at 50 years of age. The site index for each soil is determined mainly by the capability of that soil to provide moisture and growing space for tree roots. The site index in table 6 is an average for all the soils in the suitability group.

Also listed in table 6 for each woodland suitability group are trees suited to the soils in the group, as well as ratings for the limitations that affect management. The limitations rated are plant competition, seedling mortality, windthrow hazard, equipment limitation, and erosion hazard. The ratings are expressed in relative terms—slight, moderate, or severe—and are explained in the following pages.

PLANT COMPETITION: When a woodland is disturbed by fire, cutting, grazing, or some other means, undesirable brush, trees, and plants may invade. The invading growth competes with the desirable trees and hinders their establishment and growth.

Competition is *slight* if unwanted plants are no special problem. It is *moderate* if the invaders delay but do not prevent the establishment of a normal, fully stocked stand. Where plant competition is moderate, seedbed preparation is generally not needed and simple methods can be used to prevent undesirable plants from invading. Competition is *severe* if trees cannot regenerate naturally. Where competition is severe, carefully prepare the site and use management that includes controlled burning, spraying with chemicals, and girdling.

SEEDLING MORTALITY: Even when healthy seedlings of a suitable tree are correctly planted or occur naturally in adequate numbers, some of them will not survive if characteristics of the soil are unfavorable.

Mortality is *slight* if not more than 25 percent of the planted seedlings die, or if trees ordinarily regenerate naturally in places where there are enough seeds. It is *moderate* if 25 to 50 percent of the seedlings die, or if trees do not regenerate naturally in numbers needed for adequate restocking. In some places, replanting to fill open spaces will be necessary. Mortality is *severe* if more than 50 percent of the planted seedlings die, or if trees do not ordinarily reseed naturally in places where there are enough seeds. If mortality is severe, plant seedlings where the seeds do not grow, prepare special seedbeds, and use good methods of planting to insure a full stand of trees.

WINDTHROW HAZARD: Soil characteristics affect the development of tree roots and the firmness with which the roots anchor the tree in the soil so that it resists the force of the wind. Root development may be prevented by a high water table or by an impermeable layer. The protection of surrounding trees also affects windthrow hazard. Knowing the degree of this hazard is important when choosing trees for planting and when planning release cuttings or harvest cuttings.

The windthrow hazard is *slight* if roots hold the tree firmly against a normal wind. Individual trees are likely to remain standing if protective trees on all sides are removed. The hazard is *moderate* if the roots develop enough to hold the tree firmly except when the soil is excessively wet and the wind velocity is very high. It is *severe* if rooting is not deep enough to give adequate stability. On soils with a rating of severe, individual trees are likely to be blown over if they are released on all sides.

EQUIPMENT LIMITATIONS: Drainage, slope, soil texture, or other soil characteristics may restrict or prohibit the use of ordinary equipment in pruning, thinning, harvesting, or other woodland management. Different soils may require different kinds of equipment, methods of operation, or seasons when equipment may be used.

Limitation is *slight* if there are no restrictions on the type of equipment or on the time of year that the equipment can be used. It is *moderate* if slopes are moderately steep, if heavy equipment is restricted by wetness in winter and early in spring, or if the use of equipment damages the tree roots to some extent. Equipment limitation is *severe* if many types of equipment cannot be used, if the time equipment cannot be used is more than 3 months a year, and if the use of equipment severely damages the roots of trees and the structure and stability of the soil. It is also severe on wet bottom lands and low terraces in winter or early in spring.

EROSION HAZARD: Woodland can be protected from erosion by adjusting the rotation age and cutting cycles, by using special techniques in management, and by carefully constructing and maintaining roads, trials and landings.

Erosion hazard is rated according to the risk of erosion on well-managed woodland that is not protected by special practices. It is *slight* where a small loss of soil is expected. Generally, erosion is slight if slopes range from 0 to 2 percent and runoff is slow or very slow. The erosion hazard is *moderate* where there will be a moderate loss of soil if runoff is not controlled and the vegetative cover is not adequate for protection. It is *severe* where steep slopes, rapid runoff, slow infiltration, slow permeability, and past erosion make the soil susceptible to severe erosion.

WOODLAND SUITABILITY GROUP 1

This group consists of deep, well drained and moderately well drained, medium-textured soils that are moderately permeable in the subsoil. Of the 117,500 acres of woodland in the county, the wooded areas of the soils in this group amount to about 9 percent. The soils are—

LbB	Lexington silt loam, 2 to 5 percent slopes.
LbC	Lexington silt loam, 5 to 8 percent slopes.
LbD	Lexington silt loam, 8 to 12 percent slopes.
LcB3	Lexington silty clay loam, 2 to 5 percent slopes, severely eroded.
LcC3	Lexington silty clay loam, 5 to 8 percent slopes, severely eroded.
LcD3	Lexington silty clay loam, 8 to 12 percent slopes, severely eroded.
LoA	Loring silt loam, 0 to 2 percent slopes
LoB	Loring silt loam, 2 to 5 percent slopes.
LoB3	Loring silt loam, 2 to 5 percent slopes, severely eroded.
LoC	Loring silt loam, 5 to 8 percent slopes.
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded.
LoD	Loring silt loam, 8 to 12 percent slopes.
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded.
LoE	Loring silt loam, 12 to 20 percent slopes.
LoE3	Loring silt loam, 12 to 20 percent slopes, severely eroded.
LgD	Loring-Gullied land complex, 5 to 12 percent slopes.
LgE	Loring-Gullied land complex, 12 to 20 percent slopes.
MeA	Memphis silt loam, 0 to 2 percent slopes.
MeB	Memphis silt loam, 2 to 5 percent slopes.
MeC	Memphis silt loam, 5 to 8 percent slopes.
MeD	Memphis silt loam, 8 to 12 percent slopes.
MfB3	Memphis silty clay loam, 2 to 5 percent slopes, severely eroded.
MfC3	Memphis silty clay loam, 5 to 8 percent slopes, severely eroded.
MfD3	Memphis silty clay loam, 8 to 12 percent slopes, severely eroded.
MgD	Memphis-Gullied land complex, 5 to 12 percent slopes.
MgE	Memphis-Gullied land complex, 12 to 20 percent slopes.

TABLE 6.—*Estimated productivity of woodland suitability*

Woodland suitability groups and soils	Productivity: Species	Productivity: Site index [1]
Group 1. Well drained and moderately well drained, medium-textured soils that are permeable in the subsoil— Lexington (LbB, LbC, LbD, LcB3, LcC3, LcD3) Loring (LoA, LoB, LoB3, LoC, LoC3, LoD, LoD3, LoE LoE3) Memphis-Gullied land complex (MgD, MgE) Memphis (MeA, MeB, MeC, MeD, MfB3, MfC3, MfD3). Loring-Gullied land complex (LgD, LgE).	Upland oaks Yellow-poplar Black walnut Loblolly pine Shortleaf pine	75–85 85–95 65–75 70–90 65–85
Group 2: Deep, moderately well drained, medium-textured soils that have a fragipan and occur on uplands and terraces— Grenada (GaA, GaB, GaB2, GaB3, GaC, GaC2, GaC3, GaD, GaD3, GbA, GbB, GbB2, GbB3, GbC2, GbC3). Grenada-Gullied land complex (GgC, GgD).	Loblolly pine Shortleaf pine Upland oaks	75–90 65–75 60–70
Group 3: Deep, somewhat poorly drained and poorly drained, silty soils on upland flats and on terraces— Calloway (CaA, CaB, CaB2, CbA, CbB, CbB2). Henry (He, Ho, Ht).	Red oak Loblolly pine	70–85 70–80
Group 4: Deep, well drained to moderately well drained, medium-textured soils on flood plains— Collins (Cf, Cm Co, Cu). Vicksburg (Vb, Vc, Vk, Vu).	Yellow-poplar Black walnut Loblolly pine Cottonwood	85–100 50–60 80–100 80–100
Group 5: Deep to moderately deep, excessively drained, medium- to coarse-textured soil on bottom lands over silty alluvium— Sandy alluvial land (Sa).	Cottonwood	90–100
Group 6: Deep, somewhat poorly to poorly drained soils of varied texture on bottom lands— Falaya (Fa, Ff, Fm, Fu). Swamp (Sw) Waverly (Wa, Wv).	Cypress	70–90
Group 7: Deep sandy soils on uplands— Lexington-Ruston (LeD LeD3, LeF, LeF3). Ruston (RcF3, RdF). Ruston-Eustis (ReF). Lexington-Ruston-Gullied land complex (LfD, LfF).	Loblolly pine Shortleaf pine	55–80 50–70
Group 8: Gullied sandy and silty soils— Gullied land, sandy (Gn). Gullied land, silty (Gs)	Loblolly pine Shortleaf pine	65–85 60–75

[1] Site index is the average total height of dominant and codominant trees at 50 years of age in a normal, well-stocked stand. For example, loblolly pine will grow to a height of 70 to 90 feet in 50 years on the soils in group 1.

The Memphis soils developed in deep, silty materials. The Lexington soils developed in silty materials that are less than 3½ feet thick and are underlain by sand. Although the Loring soils are well drained or moderately well drained, they are not so well drained as the other soils in this group.

The permeability of the surface soil is moderate. Natural fertility is moderate to moderately low, and the content of organic matter is moderately low to very low. The available water capacity ranges from high to moderately low. The soils are medium acid or strongly acid.

The soils in this group are the most suitable soils on uplands and terraces in the county for mixed hardwoods or pines. Well-suited trees are black walnut, white oak, sycamore, yellow-poplar, sweetgum, hickory, and loblolly pine.

Plant competition is moderate and ordinarily does not prevent desirable trees from making well-stocked stands. But some stands in the county are understocked and contain a large proportion of poor trees because cutting has been careless and grazing uncontrolled.

Seedling mortality is moderate. Stands ordinarily restock satisfactorily if trees are planted or if a suitable source of seed is available for natural reseeding.

The equipment limitation is slight except immediately after heavy rains and in areas cut with shallow gullies. The hazard of erosion ranges from slight in nearly level areas to severe on steep slopes, but erosion can be controlled by maintaining vegetative cover.

Windthrow is not a special problem. Trees can be cut and stands thinned without danger of future losses from windthrow.

groups and ratings of limitations that affect management

Suitable species	Plant competition	Equipment limitation	Seedling mortality	Windthrow hazard	Erosion hazard
White oak, red oak, yellow-poplar, black walnut, wild cherry, black locust, loblolly pine, shortleaf pine.	Moderate	Slight	Moderate	Slight	Slight to severe.
Loblolly pine, shortleaf pine, red oak	Moderate	Slight	Moderate	Slight	Slight to severe.
Red oak, sweetgum, cottonwood, loblolly pine	Moderate to severe.	Moderate to severe.	Moderate to severe.	Slight to moderate.	Slight to moderate.
Yellow-poplar, cherrybark oak, cottonwood, sweetgum, white ash, black walnut.	Slight	Slight	Slight	Slight	Slight.
Cottonwood, sycamore	Severe	Moderate	Severe	Slight	Slight.
Cypress, willow oak, white oak, tupelo-gum, sweetgum.	Slight to moderate.	Moderate to severe.	Slight to moderate.	Slight	Slight.
Loblolly pine, shortleaf pine, red oak	Slight to moderate.	Slight to moderate.	Slight to moderate.	Slight	Severe.
Loblolly pine, shortleaf pine	Slight	Severe	Moderate to severe.	Severe	Severe.

Figure 14.—**Preparing to thin pine stand 20 years old to promote more rapid growth. Bands painted on trees indicate those to be removed.**

WOODLAND SUITABILITY GROUP 2

This group consists of deep, moderately well drained, medium-textured soils that have a fragipan and occur on uplands and terraces. The fragipan is at a depth of about 24 inches. Wooded areas of these soils amount to about 9 percent of the woodland in the county. The soils are—

GaA Grenada silt loam, 0 to 2 percent slopes.
GaB Grenada silt loam, 2 to 5 percent slopes.
GaB2 Grenada silt loam, 2 to 5 percent slopes, eroded.
GaB3 Grenada silt loam, 2 to 5 percent slopes, severely eroded.
GaC Grenada silt loam, 5 to 8 percent slopes.
GaC2 Grenada silt loam, 5 to 8 percent slopes, eroded.
GaC3 Grenada silt loam, 5 to 8 percent slopes, severely eroded.
GaD Grenada silt loam, 8 to 12 percent slopes.
GaD3 Grenada silt loam, 8 to 12 percent slopes, severely eroded
GbA Grenada silt loam, terrace, 0 to 2 percent slopes.
GbB Grenada silt loam, terrace, 2 to 5 percent slopes.
GbB2 Grenada silt loam, terrace, 2 to 5 percent slopes, eroded.
GbB3 Grenada silt loam, terrace, 2 to 5 percent slopes, severely eroded.
GbC2 Grenada silt loam, terrace, 5 to 8 percent slopes, eroded.
GbC3 Grenada silt loam, terrace, 5 to 8 percent slopes, severely eroded.
GgC Grenada-Gullied land complex, 5 to 8 percent slopes.
GgD Grenada-Gullied land complex, 8 to 12 percent slopes.

Permeability is moderate in the surface soil and slow in the pan. The natural fertility ranges from moderate to low, and organic-matter content ranges from moderately low to very low. The available water capacity is medium to low. The soils are strongly acid.

These soils are suited to hardwoods and pines, but the pan may restrict the growth of roots and the amount of water available to trees. Limited studies of site indexes indicate that shortleaf pine and loblolly pine grow well on the soils that are not severely eroded. Shortleaf pine and loblolly pine planted 20 years ago by the Civilian Conservation Corps have an average diameter of 6 to 8 inches (fig. 14). Their survival has been fair to good. The growth of red oak, hickory, and sweetgum has been fair to good.

Plant competition and seedling mortality are moderate. Partly because the moisture supply varies, 25 to 50 percent of the planted seedlings commonly die. Even if seed trees are available, small areas are commonly understocked because natural reseeding is incomplete. Where gullies are numerous, the limitation to the use of logging equipment is slight.

WOODLAND SUITABILITY GROUP 3

This group consists of deep, somewhat poorly drained and poorly drained, medium-textured soils on upland flats and on terraces. Wooded areas of the soils in this group make up about 3 percent of the woodland in the county. The soils are—

CaA Calloway silt loam, 0 to 2 percent slopes.
CaB Calloway silt loam, 2 to 5 percent slopes.
CaB2 Calloway silt loam, 2 to 5 percent slopes, eroded.
CbA Calloway silt loam, terrace, 0 to 2 percent slopes.
CbB Calloway silt loam, terrace, 2 to 5 percent slopes.
CbB2 Calloway silt loam, terrace, 2 to 5 percent slopes, eroded.
He Henry silt loam.
Ho Henry silt loam, overwash.
Ht Henry silt loam, terrace.

The Calloway soils are somewhat poorly drained and the Henry soils are poorly drained. In winter and early in spring, the Henry soils have a high water table and are ponded in some areas.

Runoff on the soils of this unit ranges from very slow to moderate. Permeability is moderate to slow in the surface layer and slow in the subsoil. The moisture content ranges from very high in winter to low in summer. Natural fertility and organic-matter content are moderately low to low. These soils are strongly acid in most places but are slightly acid to alkaline in a few spots.

The soils in this group are suited to hardwoods that tolerate wetness. Willow oak, red gum, and hackberry grow on the poorly drained flats. On the higher areas are pin oak, red oak, sweetgum, hickory, cottonwood, sycamore, and persimmon. Stands vary from almost pure stands of one kind of tree to mixed stands of many kinds.

Plant competition is moderate to severe. Because the moisture content of these soils varies greatly, 50 percent or more of the planted trees die. When these soils are wet in winter or early in spring, the use of heavy logging equipment may injure tree roots or compact the soil.

Except on the more sloping parts, soil erosion is not a problem on these soils and only minor precautions are needed. The windthrow hazard is slight to moderate.

WOODLAND SUITABILITY GROUP 4

This group consists of deep, well drained and moderately well drained, medium-textured soils on flood plains. Wooded areas of the soils in this group make up about 6 percent of the woodland in the county. The soils are—

Cf Collins fine sandy loam.
Cm Collins fine sandy loam, local alluvium.
Co Collins silt loam.
Cu Collins silt loam, local alluvium.
Vb Vicksburg fine sandy loam.
Vc Vicksburg fine sandy loam, local alluvium.
Vk Vicksburg silt loam.
Vu Vicksburg silt loam, local alluvium.

The Vicksburg soils are well drained and the Collins soils are well drained and moderately well drained.

Runoff is slow. Permeability is moderate in the surface layer and moderate or moderately slow in the subsoil. The water table is fairly high in winter and early in spring.

The available water capacity is high. Natural fertility is moderately low to moderately high, and the content of organic matter is moderate to moderately high. These soils are medium or strongly acid.

These soils are suited to mixed hardwoods of high value. Yellow-poplar, cherrybark oak, white oak, ash, cottonwood, and hickory grow well.

Plant competition is slight, and natural restocking is generally adequate. Seedling mortality is not a problem in planting trees or in natural reseeding. The use of heavy equipment is limited only by occasional flooding.

Because these soils receive deposits of soil material annually, soil erosion is not a problem. The windthrow hazard is slight.

WOODLAND SUITABILITY GROUP 5

This group consists of only Sandy alluvial land (Sa). This soil is deep to moderately deep, excessively drained, and medium to coarse textured. It is on bottom lands and is underlain by silty alluvium. Wooded areas of this soil make up about 1 percent of the woodland in the county.

Runoff is very slow. Permeability is rapid, and the available water capacity is moderate. The water table is high in winter and spring, but its depth ranges from 6 to 12 feet late in summer. Natural fertility and the organic-matter content are low to very low. This soil is very strongly acid.

This soil is suited to cottonwood trees, which are intermingled with black willow, pin oak, willow oak, and sycamore. Many small areas are surrounded by areas of intensively cropped soils. If trees are planted on areas of this soil, the crops on the better soils would be damaged by shading and the trees would use up available water.

Plant competition and seedling mortality are severe. Cottonwood seedlings or cuttings can be established if competing plants are destroyed and a good seedbed is prepared. Also, the seedlings should be cultivated for 1 or 2 years. The use of logging equipment is limited by heavy rains and by the high water table in winter or early in spring. Some very sandy areas hamper logging operations.

Because this soil receives deposits of soil material annually, soil erosion is not a problem. The windthrow hazard is slight.

WOODLAND SUITABILITY GROUP 6

This group consists of deep, somewhat poorly drained to poorly drained soils of varied texture on bottom lands. Wooded areas of the soils in this group make up about 32 percent of the woodland in the county. The soils are—

- Fa Falaya fine sandy loam.
- Ff Falaya fine sandy loam, local alluvium.
- Fm Falaya silt loam.
- Fu Falaya silt loam, local alluvium.
- Sw Swamp.
- Wa Waverly fine sandy loam.
- Wv Waverly silt loam.

The Falaya soils are somewhat poorly drained. The Waverly soils are poorly drained and are frequently flooded. Swamp is very poorly drained or ponded.

Runoff on the soils of this unit is slow or very slow. Permeability is moderate to moderately slow in the surface layer and slow in the subsoil. The available water capacity ranges from high to excessive. The water table is at or above the surface in winter and is as much as 12 feet below the surface in summer. Natural fertility is moderate to low, and the organic-matter content is moderately high to high. These soils are strongly acid.

The soils in this group are suited to cypress, sweetgum, tupelo-gum, green ash, white oak, willow oak, and other hardwoods that tolerate variable degrees of wetness.

Plant competition and seedling mortality range from slight to moderate. Cleared areas of poorly drained soils reseed naturally to birch and willow. Cattails, marshgrass, buttonbush, and other water-loving plants invade cleared areas on ponded soils. Equipment limitations vary from moderate on the Falaya soils to severe on the wetter Waverly soils and Swamp. Because these soils are generally wet, the use of heavy equipment may injure tree roots or compact the soil.

Soil erosion is not a problem, because these soils receive deposits of soil material annually. The windthrow hazard is slight.

WOODLAND SUITABILITY GROUP 7

This group consists of strongly sloping and steep soils on uplands. Wooded areas of these soils make up about 28 percent of the woodland in the county. The soils are—

- LeD Lexington-Ruston complex, 8 to 12 percent slopes.
- LeD3 Lexington-Ruston complex, 8 to 12 percent slopes, severely eroded.
- LeF Lexington-Ruston complex, 12 to 30 percent slopes.
- LeF3 Lexington-Ruston complex, 12 to 30 percent slopes, severely eroded.
- LfD Lexington-Ruston-Gullied land complex, 8 to 12 percent slopes
- LfF Lexington-Ruston-Gullied land complex, 12 to 30 percent slopes.
- RcF3 Ruston sandy clay loam, 12 to 30 percent slopes, severely eroded
- RaF Ruston sandy loam, 12 to 30 percent slopes.
- ReF Ruston Eustis complex, 12 to 30 percent slopes.

The Lexington soils are generally silty and well drained. The Ruston and Eustis soils are generally sandy, porous, and excessively drained. Some soils are severely eroded.

Runoff ranges from moderate to rapid. Permeability is moderate in the Lexington soils and is rapid in the more sandy Ruston and Eustis soils. The available water capacity ranges from moderate to very low. Natural fertility is moderate to low, and the organic-matter content is moderately low to very low. These soils are medium acid or strongly acid.

Trees growing naturally on these soils are blackjack oak, sassafras, persimmon, post oak, scarlet oak, and black oak. However, loblolly pine, shortleaf pine, and other high-value trees are well suited.

Plant competition varies from slight to moderate but ordinarily does not prevent restocking with more desirable trees. To insure well-stocked stands, however, the cull hardwoods in the overstory should be girdled or poisoned. Seedling mortality ranges from slight on Lexington soils to moderate on Ruston and Eustis soils. Because the soils in this group are generally sandy, they can be planted through a wide range of moisture content. They dry rapidly, however, and survival of plants may be reduced if planting is done when the soils are dry. The use of heavy equipment is somewhat limited by excess sand in places and by steep slopes.

Because the soils in this group are steep, runoff is rapid and the erosion hazard is moderate to severe. Areas now

in trees should remain in trees. Open areas are suitable for plantings of loblolly or shortleaf pine. In some areas pine can be planted under an overstory; then the hardwoods in the overstory can be girdled or poisoned to insure well-stocked stands. Windthrow is not a serious hazard.

WOODLAND SUITABILITY GROUP 8

This group consists of sandy and silty soils that have been gullied. Wooded areas of these soils make up about 12 percent of the woodland in the county. The land types are—

Gn Gullied land, sandy.
Gs Gullied land, silty.

Gullied land, sandy, is in the eastern one-third of the county in areas where gullies have cut through Lexington, Ruston, and Eustis soils into the underlying sand and clay. Gullied land, silty, is in the western two-thirds of the county in areas where gullies have cut through Memphis, Loring, and Grenada soils into the underlying sandy material of the Coastal Plain. The soils in this group are strongly sloping to moderately steep and have 10 to 100 percent of their surface covered with gullies.

Runoff generally is very rapid. Permeability and other characteristics vary from place to place according to the kind of soil and the degree of erosion.

The soils in this group are suited to loblolly and shortleaf pine. The loblolly pine withstands silting better than the shortleaf pine and should be planted in areas that receive deposits of soil material.

Plant competition is not a problem. Establishing trees may be difficult because of active erosion, low natural fertility, and other limitations. Because 25 to 50 percent of the planted seedlings die, some replanting is needed. But planting pines on the soils of this group has been successful, and pines have regenerated naturally in a few places where there were enough seed trees.

To control erosion, trees have been planted across broad, flat gullies; in pockets at the head and along the sides of gullies; across gullies to form a live dam; and in several rows along the rim of gullies to prevent banks from sloughing or caving in. Some plantings have given encouraging results. On soils of this group the windthrow hazard is severe.

Formation and Classification of Soils [5]

This section has three main parts. The first part tells how the soils of Fayette County were formed. The second part describes some of the important processes that affect the formation of soil horizons. In the third part the soil series are placed in higher categories according to important differentiating characteristics.

Formation of Soils in Fayette County

Most soils in the county have several similarities; they are pale colored, silty or loamy, fairly deep, and predominantly gently sloping. Other soils, however, are shallow, are steep, or are leached and infertile. These soils are generally unsuitable for cultivated crops. Other soils are gray, dry out slowly after rains, and are not suitable for some plants. Not far away from these gray soils, a soil may be brown, and it may hold some water for plants but let excess water drain away. Such a soil is easy to work and, if fertilized, is suitable for many kinds of plants. All characteristics of different soils, whether the characteristics are unique or are common to many soils, are the result of conditions under which the soils formed.

Soils form as a result of five major factors of soil formation. These factors are parent material, climate, organisms, relief, and time. The combination of influences of the five major factors determine the nature of the soil at any point on the earth. All five factors are responsible for every soil in Fayette County and throughout the world, although the relative importance of each differs from place to place. Sometimes one factor is more important and sometimes another.

When the first soils in Fayette County were formed, the pattern of relief was similar to the pattern today. It consisted of broad, nearly level bottoms along sluggish, meandering streams that dissected the undulating and rolling upland plains. On the bottoms, silty material from the uplands was added during many floods. Because the water moved slowly from the flat soils, the swamps that formed affected aeration, the growth of plants, and the formation of soils. Aeration was better in the drier places, and there the plants differed from those in the swamps. Brown soils formed in the drier places, and they are better suited to cultivation than soils in the swamps. Farming changed the rate of some processes that affect soils. Much of the bottom land and upland was cleared and cultivated. As a result of the cultivation on the nearby uplands, there was an increase in the amount of silty and loamy material that was washed away and deposited. In places sandy outwash damaged the soils of the bottom land.

The soils story of the uplands is more interesting than that of the bottom lands. Except that the stream bottoms were wider, the topography of the county during early Ice Age was much like the topography today. Only Coastal Plain material, or sediments deposited by old seas, was exposed. Soils were well developed. They were redder than the present soils and were more leached, less fertile, and less silty. Some old buried soils can still be seen in deep road cuts. They make up a part of the profile of Ruston soil and other soils of today.

When the glaciers melted in the north many things were changed. The floods increased. Each time the water receded, bottoms along the Mississippi River were exposed. Winds from the west picked up loose silt from these flood plains and carried it away. For a long period some of this loess was dropped on Fayette County until a thick layer covered the uplands like a blanket of snow. This deposit is called Loveland loess. Then deposition slowed, and a long period of soil formation began. Some of the loess washed away and left a layer of uneven thickness. The loess weathered, and soils were formed that were lower in fertility than present soils, and had more definite layers. Those soils now exist as buried soils where loess is thick, or as the lower horizons of present soils where loess is thin.

After this fairly long period of soil formation, a layer of loess that is thinner than the Loveland loess was deposited. This layer was the Farmdale loess. Only a short period passed before the Peorian loess was deposited, and

[5] This section was written by DR. M. E. SPRINGER, associate professor of agronomy, University of Tennessee.

few changes occurred in the short period. In most of the county the Farmdale loess is hardly recognizable.

During and between the periods that the Loveland and Farmdale loess were deposited, the streams cut down and left some of the former flood plains above overflow as terraces. Then the winds brought in and deposited another layer of loess, the Peorian. This layer covered the uplands and terraces and became the dominant parent material for most of the soils on uplands and on terraces. The word "terrace" is in the name of those Calloway, Grenada, and other soils that are underlain by old alluvium on terraces above the bottom lands.

Part of the loess on slopes has been moved by water. The loess is thinner on the steeper slopes than it is on the gentle slopes of uplands, or in areas where the loess has accumulated at the foot of slopes. On the steeper slopes the loess is too thin to make up the entire soil, and the soil layers consist of other soil material and of old soils. Many kinds of soils formed partly in thin loess, although areas of these soils are small.

What then have been some of the effects in this county of parent material, climate, organisms, relief, and time on the formation of soils?

Parent material: The soils of Fayette County were formed from three general kinds of parent material. These are loess, Coastal Plain material, and alluvium.

The loess is silty windblown material and is the parent material of most soils on the gently sloping uplands. Three layers of loess can be seen in the county. Although these layers consist of similar loess, differences in the time of deposition and in the amount of weathering account for differences in the soils.

The Coastal Plain material is made up of marine sediments. It was the parent material of soils on the steeper slopes, and it underlies the loess on the gentle slopes. In Fayette County these sediments are mostly sandy, but there is an occasional lens of clay in a few places. The soils that are formed in this sandy material are strongly acid, have a leached A horizon, and are sandy throughout the profile. In many places the lower part of a soil is formed in sediments of the Coastal Plain, and the upper part is formed in a thin layer of loess.

The alluvium in Fayette County is material that washed from nearby uplands, or it is the sediments that were deposited by streams. Soils that formed in alluvium vary according to the kind of material deposited, the length of time since the alluvium was deposited, and the drainage under which the soils formed. The alluvium in Fayette County is silty, loamy, or sandy and has washed from soils in loess and in Coastal Plain material. On the high benches or terraces the alluvium is under a thick layer of loess.

Climate: The climate of Fayette County is humid, temperate, and characteristic of the climate in the southeastern part of the United States. It is described in the section "General Nature of the County." Because the climate varies little within the county, this uniformity has been a factor in soil formation. Local differences in soils cannot be attributed to differences in climate, but the climate has strongly affected the formation of many soils in the county. Some soils in the county are typical of those developed in a humid, temperate climate. These soils are strongly weathered, highly leached, acid, and infertile. As a result of the high rainfall, leaching is rather intense, and soluble and colloidal materials move downward in the soil. Weathering and translocation of materials are almost continuous because the soil is frozen for only short periods and then to only a shallow depth.

Organisms: Native plants have greatly affected soil development in Fayette County. The activity of animals was less important. On the uplands the native vegetation, like the climate, was fairly uniform and relatively unimportant in accounting for differences among soils within the county.

The first settlers in the county found a dense stand of hardwoods. A few shortleaf pines intermingled with the hardwoods on the west-facing and south-facing slopes. On the well-drained soils, the dominant trees were oak, hickory, tulip-poplar, and shortleaf pine. Chestnut trees were plentiful, but they have since been destroyed by blight. In the poorly drained areas, particularly those of the flood plains, there was a wider variety of trees, mainly water-tolerant oaks, sycamore, beech, willow, gum, ash, and maple. The main differences in vegetation were probably the result of differences in drainage and aeration of the soils.

Fungi and micro-organisms also had a strong influence on soil formation. The greatest activity of earthworms and other smaller animals was in the upper few inches of the soil. Mixing of the soil material by rodents and by the windthrow of trees has had little influence.

Relief: Relief affects the formation of soils and causes differences in soils in several ways. Even in areas that receive the same rainfall, slope influences the amount of water that runs off of, accumulates on, or enters into the soil. This in turn, affects the amount of soil that washes away. More soil is lost on steep slopes because runoff is greater and faster. In parts of the county where the loess was thick, the soil layers are thicker on the nearly level slopes than they are on the steep slopes. Where the loess was thinner, the deeper horizons of soils on the slopes have developed in Coastal Plain material or in buried soils. In places, the sloping soils are mainly in Coastal Plain material, and gently sloping soils on the ridges are mainly in loess. The Lexington-Ruston soil association shows this pattern.

Because less water enters the soil on steep slopes than on flats, less water is available for plant growth, particularly in periods of low rainfall. As a result, native plants on the steeper slopes differed from those on more nearly level uplands. Even more different was the native vegetation on the low bottom lands where water accumulated. As drainage varied from place to place, so did aeration and the environment of plant roots, micro-organisms, and chemical activity. These differences in drainage, therefore, caused differences in soils. On the uplands and terraces, the differences are reflected in the well-drained Memphis and Loring soils and in the poorly drained Henry soils. On the bottoms, examples are the well-drained Vicksburg soils and gray, poorly drained, and poorly aerated Waverly soils.

Topography apparently affects drainage and aeration more than any other factor, but other factors are also important. In some places a sloping soil on hillsides is more poorly drained than a gently sloping soil on ridgetops. For example, Loring soils on gently sloping ridgetops are somewhat better drained than Grenada soils on steeper side slopes. The Loring soils were formed in

thick, permeable Peorian loess. Grenada soils formed, at least partly, in Peorian loess. They are underlain by an older, more compact, buried soil that retards drainage. In some soils that were formed on concave slopes, aeration is even poorer because the water runs off more slowly.

Time: The length of time that a soil has formed, or the age of a soil, is also important. The soils of the county range from very young to very old. Some soils on bottoms still receive sediments during each flood. The properties of these young soils differ greatly from those of soils that have been forming for many centuries. Among the criteria of judging the age of a soil are the relative thickness of the soil horizons and the amount of development of horizons as reflected by contrast in color, clay content, consistence, structure, and other properties. The Collins soils formed in recent alluvium are young; the Ruston soils formed in Coastal Plain sediments are comparatively old.

Soil has been forming in Peorian loess for a comparatively short period, but where this loess is thick enough, it is the parent material of the whole soil. The Farmdale loess is thin and has not affected soil formation so much as have the Peorian and Loveland loess. In places where the soil profile consists of both Peorian and Loveland loess, two periods of formation affect the soils, as well as two kinds of parent material. The soils that formed in the Loveland loess are more weathered and more strongly developed than those that formed in the Peorian loess.

Formation of Horizons

Horizons are well developed in most soils on uplands. Uneroded soils have a granular, pale, silty A horizon. The B horizon has subangular blocky structure and does not contain much clay. Some soils on uplands and nearly all soils on bottoms have a weak boundary between the adjoining horizons. In parts of the uplands some or all of the original A horizon has been removed by erosion, and the B horizon is at or near the surface.

Different kinds of horizons have formed in soils of the county as the result of (1) accumulation of organic matter, (2) leaching of carbonates and salts, (3) translocation of silicate clay materials, or (4) reduction and transfer of iron, or (5) a combination of these processes. In most soils in the county, two or more of these processes have affected the development of horizons.

Some organic matter has accumulated in the uppermost layer of practically all soils in the county, and an A_1 horizon has formed. Much of the organic matter is in the form of humus, although it is in small quantities. In

TABLE 7. *Chemical properties and particle-size*

Soil type	Horizon	Depth	Exchangeable cations					
			Ca	Mg	K	Na	H	Sum
		Inches	*meq./100 gm.*	*meq./100 gm.*	*meq./100 gm.*	*meq./100 gm.*	*meq./100 gm.*	
Calloway silt loam, terrace:								
Site 1	A_p	0–6	4.2	2.2	0.2	0.1	6.3	13.0
	B_2	6–11	2.9	3.7	.2	.1	9.8	16.7
	B_{3mg1}	11–15	1.3	1.8	.2	2	9.3	12.8
	B_{3mg2}	15–29	.1	6.0	.3	.8	10.5	17 7
	B_{3mg3}	29–39	.2	5.4	2	.8	10.5	17 1
	B_{3mg4}	39–50	.2	5.2	.2	.8	9.0	15.4
	B_{3mg5}	50–74	.1	2.6	.1	.3	6.3	9.4
Site 2	A_p	0–6	3.6	1.2	.3	.1	13.9	19.1
	B_{21}	6–10	2.1	1.9	.2	.1	18.8	23.1
	B_{22g}	10–16	1.4	2.1	.2	.1	12.2	16.0
	B_{3g}	16–19	1.1	1.8	.2	.1	11.3	14.5
	B_{3mg1}	19–26	.5	2.1	.2	.2	10.0	13.0
	B_{3mg2}	26–37	.7	5.8	.2	.6	10.5	17 8
	B_{3mg3}	37 52	7	5.2	.2	.6	9.3	16.0
	B_{3mg4}	52–58	.8	5.1	.1	.6	5.4	12.0
	B_{3mg5}	58–69	.8	3.8	.1	.4	3.4	8.5
	B_{31}	69–85	.6	2.5	.1	.3	3.1	6.6
	D_u	85–113+	2	.4	<.1	.1	2.9	3.6
Collins silt loam:								
Site 1	A_p	0–8	7.8	1.4	.2	.1	4.1	13.6
	C_{11}	8–20	5.8	1.9	.2	1	5.8	13.8
	C_{12g}	20–30	3.2	1.6	.1	.1	6.3	11.3
	C_{13g}	30–42	1.5	1 5	.1	1	6.1	9.3
	C_{14g}	42–54	.8	1 2	.1	1	7 3	9.5
Site 2	A_p	0–6	2.5	1 1	1	.1	5.6	9.4
	C_1	6 18	2.7	1.1	.1	.1	5.3	9.3
	A_{1b}	18–24	2.0	.7	.1	.1	7.5	10.4
	B_{2gb}	24–37	1.6	.7	.1	.1	6.1	8.6
	B_{3gb}	37 49	.9	.8	.1	.2	6.8	8.8
	B_{3mgb1}	49 61	.8	.8	.1	.4	6.5	8.6
	B_{3mgb2}	61 73	.8	1.0	.1	.4	6 3	8.6
	B_{3mg3}	73–102	1.0	1.1	.1	.3	3.1	5.6

See footnotes at end of table.

much of the county the A_1 horizon has been mixed with the B horizon by cultivation. The Henry and other soils have a distinct but very thin A_1 horizon that contains little organic matter. The A_1 horizon in Memphis soils is thicker than that in Henry soils and is higher in organic matter. Beneath the plow layer the horizons of all soils in the county are very low in organic matter.

The leaching of carbonates and salts has had a small effect on horizon differentiation. The effect has been indirect in that it has permitted the translocation of silicate clay minerals in many of the soils. Most soils on uplands are strongly acid or medium acid. Soils that show the least effects of leaching are darker colored in the upper part than other upland soils and are less acid. Leaching has greatly affected the upper horizons of Calloway, Henry, and other soils on uplands but has had little effect in the young soils on the bottom lands. The young soils are acid and contain a small amount of bases because they are formed in sediments washed from material that was leached before it was transported and deposited.

The translocation of silicate clay minerals has contributed to the development of nearly all the soils except those in recent alluvium. This process is important in forming horizons of the older soils in the county. The A horizon of many of the soils shows a loss of clay, and the B horizon shows a gain. This translocation of clay is indicated by clay films on the ped surfaces and in root channels. Translocated clay can be seen in Memphis soils. In some of the poorly drained soils the clay has moved to a depth of more than 3 feet.

Iron has been reduced and transferred in the poorly drained and somewhat poorly drained soils. This process is rapid in young alluvium that has poor aeration and is fairly rapid in the deeper horizons of Grenada and other moderately well drained soils that have a pan. The reduction and transfer of iron, a process called gleying, has been important in forming horizons in naturally wet soils. Some horizons of a number of soils have been mottled yellowish red, strong brown, or yellowish brown by segregated iron. In addition, the segregated iron has formed yellowish-brown to black, soft or hard concretions.

Fragipans contribute much to the properties and behavior of the soils in Fayette County. They form in the lower part of the B horizon or just beneath it. They are brittle, silty or loamy layers that are high in bulk density and are very slowly permeable. Consequently, fragipans hinder drainage, reduce aeration, and are difficult for the roots of most plants to penetrate.

Some of the fragipans are indicated in the B_{3mg} horizon of the Calloway and the Grenada soils in table 7, which

distribution of representative soils

Base saturation	pH	Organic carbon	Size class and particle-size distribution							Bulk density	Texture
			Very coarse sand (2.0–1.0 mm.)	Coarse sand (1.0–0.5 mm.)	Medium sand (0.5–0.25 mm.)	Fine sand (0.25–0.1 mm.)	Very fine sand (0.1–0.05 mm.)	Silt (0.05–0.002 mm.)	Clay (<0.002 mm.)		
Percent		*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Gm./cc.*	
74	6.0	0.59	[1]0.5	[2]1.4	[3]1.9	[3]2.3	[3]0.8	73.7	19.4	1.42	Silt loam.
67	5.2	.31	[1].2	[2]1.0	[3].8	[3]1.2	[3].6	72.0	24.2	1.35	Silt loam.
36	5.3	.15	[1]1.0	[1]1.6	[2].9	[2]1.2	[2].7	77.9	16.7	1.51	Silt loam.
51	5.1	.10	[1].4	[1].9	[2].7	[2].9	[2].7	73.8	22.6	1.55	Silt loam.
50	5.1	.10	<.1	[1].4	[1].5	[3].9	[1].6	77.0	20.6	1.53	Silt loam.
54	5.3	.07	[1].1	[2]1.0	[3]2.3	[3]2.8	[3].9	74.9	18.0	1.55	Silt loam.
51	5.4	.07	[2]1.9	[2]9.0	14.8	18.4	2.8	40.1	13.0	1.82	Loam.
55	5.4	1.15	[1]1.1	[1]1.7	[3]1.5	[3]1.4	[3].6	78.1	15.6	1.52	Silt loam.
40	4.9	.28	[1].5	[1]1.4	[2]1.2	[2]1.1	[2].6	72.3	22.9	1.46	Silt loam.
32	4.8	.18	[1].7	[1]1.8	[2]1.2	[2]1.1	[2].8	70.7	23.7	1.40	Silt loam.
29	4.9	.18	[1].6	[1]2.2	[2]1.3	[2]1.3	[2].8	72.1	21.7	1.40	Silt loam.
30	5.1	.10	[1].9	[1]2.3	[2]1.5	[2]1.4	[2].9	75.5	17.5	1.53	Silt loam.
52	5.0	.09	[1].7	[1]2.0	[3]2.3	[3]2.0	[3].8	69.7	22.5	1.50	Silt loam.
55	5.3	.07	[1].2	[1]2.2	[3]4.2	[3]3.2	[3].9	69.7	19.6	1.62	Silt loam.
74	5.6	.06	.3	6.4	13.2	10.0	1.6	54.3	14.2	1.64	Silt loam.
73	5.9	.06	.2	9.7	19.3	14.2	2.1	44.0	10.5	1.75	Loam.
78	6.1	.04	.2	12.2	24.2	19.2	2.3	34.3	7.6	1.74	Sandy loam.
47	5.5	.03	.7	17.1	35.6	28.1	1.9	13.6	3.0	--	Loamy sand.
97	6.3	1.02	<.1	<.1	.1	<.1	.3	86.4	13.2	1.41	Silt loam.
85	5.8	.54	<.1	<.1	<.1	<.1	[3].2	84.0	15.8	1.35	Silt loam.
62	5.3	.55	<.1	<.1	.1	.1	1.4	84.1	13.3	1.32	Silt loam.
54	5.0	.32	<.1	<.1	[3].1	[3]1.1	[3]1.5	87.4	9.9	1.41	Silt.
34	4.8	.25	<.1	[3].2	[3].8	[3]4.3	[3]2.4	80.7	11.6	1.44	Silt/silt loam.
61	5.1	.73	<.1	<.1	<.1	.2	1.3	88.4	10.1	1.50	Silt.
71	5.7	.35	<.1	<.1	<.1	<.1	.8	90.0	9.2	1.45	Silt.
41	5.3	.60	[1].2	2.7	.8	[3]1.2	[3].9	83.6	12.6	1.32	Silt loam.
45	5.2	.15	[1].6	[2]1.5	[3]1.9	[3]2.7	[3]1.1	80.9	11.3	1.44	Silt.
37	5.3	.07	[1].5	[2]1.4	[3]1.6	[3]2.2	[3].9	80.4	13.0	1.34	Silt loam.
38	5.7	.07	[1].6	[3]1.3	[3]1.7	[3]2.4	[2]1.1	81.0	11.9	1.60	Silt/silt loam.
42	5.7	.07	[1]1.1	[2]2.7	[3]3.1	[3]5.3	[3]1.8	74.8	11.2	1.65	Silt loam.
61	5.9	.07	.3	4.0	12.8	21.5	3.1	48.5	9.8	1.78	Loam.

TABLE 7.—*Chemical properties and particle-size*

Soil type	Horizon	Depth	Exchangeable cations					
			Ca	Mg	K	Na	H	Sum
		Inches	*meq./100 gm.*	*meq./100 gm.*	*meq./100 gm.*	*meq./100 gm.*	*meq./100 gm.*	
Collins silt loam—Continued								
Site 3	A_p	0–6	3.2	1.6	0.2	<0.1	4.8	9.8
	C_{11}	6–11	2.5	1.8	.1	.1	5.1	9.6
	C_{12g}	11–21	2.2	1.6	.1	.1	4.6	8.6
	C_{13g}	21–33	2.3	1.7	.1	.2	3.4	7.7
		33–35	Not sampled (2 inch layer of loose sand)					
	C_{14g}	35–51	2.8	1.2	.1	.2	4.4	8.7
	A_{1b}	51–58	2.5	1.1	.1	.1	9.2	13.0
	B_{2b}	58–68	2.2	1.0	.1	.1	6.8	10.2
Grenada silt loam, terrace:								
Site 1	A_p	0–7	5.9	1.4	.4	<.1	3.9	11.6
	B_{21}	7–16	4.8	2.4	.2	.1	9.1	16.6
	B_{22}	16–21	3.4	3.1	.2	1	11.1	17.9
	B_{3mg1}	21–31	1.3	1.8	.2	.1	7.8	11.2
	B_{3mg2}	31–43	.9	2.3	.2	.1	9.0	12.5
	B_{3mg3}	43–55	.4	1.6	.1	.1	6.6	8.8
	B_{3mg4}	55–65	.3	1.4	.1	<.1	5.6	7.4
	D_{1u}	65–74	.2	1.6	.1	<.1	4.4	6.3
	D_{2u}	74–80+	.2	<.1	<.1	<.1	.5	.7
Site 2	A_p	0–6	6.4	1.5	.3	<.1	3.9	12.1
	B_{21}	6–11	4.1	3.7	.2	.1	7.8	15.9
	B_{22}	11–18	1.6	3.4	.2	.1	11.3	16.6
	B_{23g}	18–26	.7	3.0	.2	.1	10.5	14.5
	B_{3mg1}	26–40	.4	2.7	.2	.1	9.8	13.2
	B_{3mg2}	40–53	.1	2.5	.2	.1	8.0	10.9
	B_{3mg3}	53–60	<.1	1.7	.1	.1	4.8	6.7
	D_{1u}	60–66	<.1	1.5	.1	.1	4.4	6.1
	D_{2u}	66–72+	<.1	.4	<.1	<.1	1.9	2.3
Henry silt loam:								
Site 1	A_p	0–6	3.3	1.0	.2	.1	5.6	4.6
	A_{2g}	6–13	1.7	.6	.1	.2	9.0	2.6
	B_{21g}	13–18	1.5	2.3	.2	.9	14.0	4.9
	B_{22g}	18–32	2.1	2.8	.2	1.4	11.8	6.5
	B_{31g}	32–47	4.8	4.1	.2	2.1	7.8	11.2
	B_{32g}	47–61	7.2	4.7	.3	2.5	6.1	14.7
	B_{33g}	61–80	6.8	4.1	.2	2.2	3.9	13.3
	B_{34g}[4]	80–107	6.0	3.3	.2	1.9	4.4	11.4
	B_{34g}[5]	80–107	7.3	4.6	.3	2.3	3.2	14.5
	C_{1g}	107–145+	5.2	3.0	.2	1.7	2.9	10.1
Site 2	A_p	0–8	4.2	7	.1	.1	5.8	10.9
	A_{2g1}	8–18	2.1	1.2	1	1	5.8	9.3
	A_{2g2}	18–21	2.3	2.7	.2	.7	7.8	13.7
	B_{2g1}	21–32	2.6	3.6	.2	.9	9.5	16.8
	B_{2g2}	32–40	4.2	5.4	.3	1.3	9.3	20.5
	B_{3g1}[4]	40–57	4.9	5.0	.2	1.4	6.3	17.8
	B_{3g1}[5]	40–57	4.6	5.0	.2	1.4	6.3	17.5
	B_{3g2}[4]	57–84	5.4	4.4	.2	1.5	8.9	15.4
	B_{3g2}[5]	57–84	5.8	5.2	2	1.6	4.1	16.9
	C_1	84–121+	4.6	3.0	.1	1.2	3.2	12.1

[1] Many aggregates contain iron and manganese.
[2] A moderate number of aggregates contain iron and manganese.

distribution of representative soils—Continued

Base saturation	pH	Organic carbon	Size class and particle-size distribution							Bulk density	Texture
			Very coarse sand (2.0–1.0 mm.)	Coarse sand (1.0–0.5 mm.)	Medium sand (0.5–0.25 mm.)	Fine sand (0.25–0.1 mm.)	Very fine sand (0.1–0.05 mm.)	Silt (0.05–0.002 mm.)	Clay (<0.002 mm.)		
Percent		Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Gm./cc.	
75	5.2	.69	0.1	0.5	1.1	2.4	2.1	82.4	11.4	1.40	Silt
66	5.0	.47	.1	.1	.2	.6	.8	85.1	13.1	1.54	Silt loam.
64	4.9	.32	.1	.2	.4	.9	1.5	85.4	11.5	1.50	Silt silt loam.
78	5.2	.19	<.1	.3	1.5	5.4	2.5	78.5	11.8	1.53	Silt loam.
					Not sampled (2 inch layer of loose sand)						
63	5.6	.32	<.1	<.1	.1	.4	.6	86.8	12.1	1.42	Silt loam/silt.
43	5.2	.73	[1].1	[2].1	.5	2.1	1.2	80.5	15.5	1.27	Silt loam.
45	5.2	.28	[1].1	[3].2	.7	2.9	2.0	75.0	19.1	1.35	Silt loam.
108	6.5	.62	.1	1.2	2.1	2.2	.9	81.2	12.3	1.47	Silt loam/silt.
68	4.9	.28	[3].1	[3].7	1.3	1.1	.5	70.1	26.2	1.33	Silt loam.
57	4.8	.19	<.1	[2].9	[2]1.4	[2]1.3	[2].6	68.8	27.0	1.37	Silt loam/silty clay loam.
44	4.9	.09	.1	[3]3.1	4.9	[3]4.4	[3]1.2	71.8	14.5	1.57	Silt loam.
40	4.8	.10	.1	4.7	9.0	7.1	1.2	59.6	18.3	1.59	Silt loam.
34	4.9	.06	.3	9.7	17.8	14.3	2.2	40.7	15.0	1.73	Loam.
37	4.9	.07	.4	11.7	22.6	19.3	3.0	30.9	12.1	1.74	Sandy loam.
41	4.9	.06	1.3	13.4	27.5	24.5	3.5	19.1	10.7	1.71	Sandy loam.
28	5.1	.02	.3	16.4	41.8	33.5	2.4	4.3	1.3	--	Sand.
100	6.2	.77	.1	.7	1.2	2.3	1.1	78.8	15.8	1.43	Silt loam.
70	5.2	.32	<.1	[3].2	[3].4	[3]1.0	[3].7	70.5	27.2	1.43	Silty clay loam silt loam.
43	5.0	.21	<.1	[2].1	[3].5	[3].8	[3].7	70.5	27.7	1.41	Silty clay loam.
35	5.0	.14	<.1	[2].2	[3].5	[3]1.7	[3].9	74.8	21.9	1.43	Silt loam.
33	5.1	.11	<.1	.4	1.1	4.1	1.7	73.5	19.2	1.50	Silt loam.
34	5.0	.08	<.1	1.2	3.5	14.3	5.1	58.2	17.7	1.59	Silt loam.
36	5.1	.07	.1	2.5	7.7	32.9	9.6	35.5	11.7	1.77	Fine sandy loam.
35	5.1	.03	.2	3.2	9.5	41.3	11.1	24.8	9.9	--------	Fine sandy loam.
20	5.1	.03	.2	3.7	13.0	56.8	9.8	11.9	4.6	--------	Loamy fine sand.
63	5.1	.68	[1]1.8	[1]1.1	[2].4	[2].4	[2].5	86.1	9.3	1.44	Silt.
32	4.4	.18	[1]2.0	[1]1.4	[1].5	[1].4	[2].5	80.9	14.3	1.46	Silt loam.
31	4.8	.18	[1]1.8	[1]1.1	[1].4	[1].3	[2].4	67.0	29.0	1.61	Silty clay loam.
43	5.0	.08	[1].7	[1].9	[1].5	[1].5	[2].6	72.4	24.4	1.46	Silt loam.
70	5.5	.14	[1]1.4	[1]1.9	[1].5	[1].5	[1].6	73.1	22.7	1.41	Silt loam.
88	6.2	.14	[1].6	[1]1.8	[1].8	[1]1.0	[1].9	71.9	23.0	1.42	Silt loam.
101	7.1	.11	[1].2	[1].4	[1].4	[1].6	[2].6	79.7	18.1	1.43	Silt loam/silt.
98	7.4	.11	[1].4	[1].5	[1].6	[1].7	[2]1.0	79.9	16.9	1.50	Silt loam/silt.
100	7.3	.14	[1].3	[1].4	[1].3	[1].4	[2].5	78.2	19.9	1.39	Silt loam.
97	7.5	.10	[1]1.6	[1]1.4	[2]1.5	[2]1.6	[2]1.0	72.7	20.2	--------	Silt loam.
64	5.3	.66	[1]1.7	[1]1.5	[1].6	[1].9	[2]1.0	85.1	9.2	1.42	Silt.
44	4.9	.17	[1]3.3	[1]2.0	[1].6	[1].8	[1].7	79.7	12.9	1.44	Silt loam.
56	5.4	.14	[1]1.7	[1]1.4	[1].6	[1].9	[1].7	78.2	16.5	1.45	Silt loam.
55	5.1	.14	[1].6	[1]1.1	[1].6	[1].9	[1].7	73.3	22.8	1.47	Silt loam
68	5.1	.10	[1].5	[1]1.1	[1].5	[1].8	[1].9	72.5	23.7	1.47	Silt loam.
84	5.7	.07	<.1	[1].2	[1].4	[1].4	[1].8	80.4	18.0	1.37	Silt loam.
81	5.6	.11	.5	[1]1.3	[1].7	[1]1.1	[1].9	75.9	19.6	1.52	Silt loam.
97	7.0	.12	<.1	[2].2	[3].6	[3]1.4	[3].9	80.2	16.7	1.47	Silt loam.
85	6.9	.12	[1].3	[1].6	[2].6	[2]1.3	[2]1.0	78.1	18.1	1.50	Silt loam.
100	7.3	.10	[1].9	[2]1.4	3.0	7.2	2.0	68.1	17.4	--------	Silt loam.

[3] A few aggregates contain iron and manganese.
[4] Brown material
[5] Gray material.

is a table of laboratory data on selected soils. The bulk density is highest at that point in the soil where the fragipan extends into the coarser textured material. This property is also shown in the soils buried under the Collins soils.

Exchangeable calcium is less than exchangeable magnesium in the fragipan of the Grenada and the Calloway soils, but in the upper horizon exchangeable calcium is generally greater. The content of clay in the fragipan is either equal or less than the content in the B horizon.

All the samples of the Calloway and Grenada soils in table 7 were taken from terraces. In three sites, silt loam was underlain by loam or fine sandy loam at a depth of 50 to 60 inches. In one site, loam was at a depth of 43 inches. The depth at which the texture changes from silt loam to loam or to fine sandy loam is probably the depth of the loess. On terraces the loess is underlain by old alluvium. The loess on terraces is Peorian only, but on the uplands other layers of loess are under the Peorian.

The samples of Henry soils differ from those of the Calloway and Grenada soils. At a depth corresponding to the depth of the fragipan in the Calloway and Grenada soils, the Henry soils show high base saturation and high exchangeable calcium. In addition, exchangeable calcium is generally greater than exchangeable magnesium, bulk density is not especially high, and exchangeable sodium makes up 10 to 13 percent of the bases.

The samples of the Collins soils show that generally the content of silt throughout the profile is high and reaction is medium acid or strongly acid. Except for one layer which is below a depth of 73 inches, the content of silt ranges from 75 to 90 percent. The content of clay ranges from about 9 to almost 20 percent.

Although practically all the fragipans in Fayette County formed in loess, the loess was laid down in different periods and varies in thickness. Consequently, different soils with different kinds of fragipan have been formed. However, a pan-free soil has formed in level to rolling areas in many places on the higher ridges where the loess was 4 feet thick or more. For example, the well-drained, pan-free Memphis soils formed on uplands in the northwestern part of the county where Peorian loess was about 10 feet thick. By contrast, the Calloway, Grenada, and other soils with a fragipan formed on uplands in the central and southern parts of the county where the loess was only 3 or 4 feet thick.

Differences in parent material, time, and relief all played a part in the formation of soils with fragipans in Fayette County. In nearly level or gently sloping areas where the Peorian loess is between 4 and 10 feet thick, Loring soils formed. Loring soils have a weak fragipan at 30 to 36 inches. On steeper slopes where the loess is thinner than 4 feet, Grenada soils formed and the fragipan is more strongly developed. In other words, the Loring soils formed on the more level areas where Peorian loess was intermediate in thickness, and Grenada soils formed on steeper slopes where the loess was thin. Because a fragipan generally is more strongly developed on nearly level slopes than on steep slopes, the differences in the fragipans of the Grenada and the Loring soils are probably more the result of differences in parent material and time than of relief.

On terraces where Peorian loess is 4 feet thick or more, pan-free soils or soils with a weak pan have formed. Other kinds of soils have formed where the Peorian loess is 3 feet thick or less and overlies older loess, 1 to 2 feet thick, or overlies sandy material of the Coastal Plain.

Classification of Soils

Soils are placed in narrow classes so that knowledge about their behavior can be organized and applied to farming. They are placed in broader, more inclusive, categories so that they can be studied and compared with the soils of several counties or larger areas. In the comprehensive system of soil classification in the United States, there are six categories of soil classification, one above the other. Beginning at the top, the six categories are the order, the suborder, the great soil group, the family, the series, and the type. In the highest category, soils are grouped into three orders; in the lowest category thousands of soil types are recognized. The suborder and family categories have been little used. Most attention has been given to the classification of soils into types and series within counties or comparable areas and to the subsequent grouping of series into great soil groups and orders. The soil series, the soil type, and the soil phase are discussed in the section "How Soils Are Named, Mapped, and Classified."

In the broadest category in the classification system are the zonal, intrazonal, and azonal orders (*7*). The zonal order consists of soils with distinct, genetically related horizons that reflect the dominant influence of climate and living organisms in their formation. The intrazonal order consists of soils with distinct, genetically related horizons that reflect the dominant influence of a local factor of topography or parent materials over the effect of climate and living organisms. The azonal order consists of soils that lack distinct, genetically related horizons, commonly because of youth, resistant parent material, or steep topography.

Table 8 lists the soil series in Fayette County according to order and great soil group and gives distinguishing characteristics of each series. Described in the following pages are the great soil groups represented in the county and the soil series in these great soil groups. Detailed descriptions of the profile of a soil in each series are in the section "Descriptions of Soils."

Red-Yellow Podzolic soils

This great soil group consists of well-developed, well-drained, acid soils that have a thin organic A_0 and an organic-mineral A_1 horizon. The A_1 horizon is underlain by a light-colored, bleached A_2 horizon that overlies a red, yellowish-red, or yellow and more clayey B horizon. Parent materials are all more or less siliceous. Coarse, reticulate streaks or mottles of red, yellow, brown, and light gray are characteristic of the deep horizons of Red-Yellow Podzolic soils where parent materials are thick (*4*). In general, the soils in this group have low cation-exchange capacity (8 to 10 milliequivalents per 100 grams of soil) and base saturation of about 20 to 35 percent. Kaolinite is the dominant clay mineral. The subsoil has a moderate to strong, subangular blocky structure and color of moderately high chroma. The Ruston is the only soil series of the Red-Yellow Podzolic group in Fayette County.

RUSTON SERIES: This series consists of the Red-Yellow Podzolic soils. Ruston soils have a thin A_1 horizon and a

TABLE 8.—*Classification of the soil series by higher categories, and some of the factors that have contributed to differences in their formation*

ZONAL

Great soil group and soil series	Description of profile	Position	Drainage	Slope	Parent material	Degree of profile development
Red-Yellow Podzolic soils—				*Percent*		
Ruston	Light yellowish-brown fine sandy loam over yellowish-red to red sandy clay loam.	Upland	Somewhat excessive.	12–30+	Sandy material from the Coastal Plain	Strong.
Gray-Brown Podzolic soils—						
Memphis	Brown silt loam over brown to reddish-brown or yellowish-red silt loam or silty clay loam.	Upland	Good	0–20	Thick loess; more than 42 inches thick.	Moderate.
Grenada [1]	Brown silt loam over yellowish-brown silt loam or silty clay loam; fragipan at 24 to 30 inches.	Upland and terrace.	Moderately good.	0–12	Thick loess	Strong.
Lexington [2]	Brown silt loam over reddish-brown to brown or yellowish-red silty clay loam.	Upland	Good	2–30	Thin loess; less than 42 inches thick.	Strong.
Loring [1]	Brown silt loam over brown silt loam or silty clay loam; weak fragipan at 30 to 36 inches.	Upland	Good to moderately good.	0–20	Thick loess	Strong.

INTRAZONAL

Great soil group and soil series	Description of profile	Position	Drainage	Slope	Parent material	Degree of profile development
Planosols—						
Calloway	Yellowish-brown to pale-brown silt loam over mottled, light brownish-gray and yellowish-brown silt loam to silty clay loam; fragipan at about 24 inches.	Upland and terrace.	Somewhat poor	0–5	Thick loess	Very strong.
Henry	Brown to light brownish-gray silt loam over mottled, gray silt loam; generally has fragipan at about 24 inches	Upland and terrace.	Poor	0–5	Thick loess	Very strong.
Low-Humic Gley soils—						
Waverly	Grayish-brown silt loam over mottled, gray silt loam.	Bottom land	Poor	0–2	Recent alluvium from loess.	Moderate.

AZONAL

Great soil group and soil series	Description of profile	Position	Drainage	Slope	Parent material	Degree of profile development
Regosols—						
Eustis	Very dark brown, friable sand over brown, loose sand.	Upland	Somewhat excessive.	12–30+	Sandy material of the Coastal Plain.	Weak.
Alluvial soils—						
Collins	Brown silt loam over light brownish-gray silt loam.	Bottom land.	Moderately good.	0–5	Recent alluvium from loess.	Weak.
Falaya [3]	Brown silt loam over mottled, gray and brown silt loam.	Bottom land	Somewhat poor.	0–5	Recent alluvium from loess.	Weak.
Vicksburg	Brown to dark-brown silt loam over brown silt loam.	Bottom land.	Good	0–5	Recent alluvium from loess.	Weak.

[1] Grades toward Planosols.
[2] Grades toward Red-Yellow Podzolic soils.
[3] Grades toward Low-Humic Gley soils.

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fine sandy loam A_2 horizon that is leached, is light yellowish brown, and is very friable. The B horizon is yellowish-red to dark-red sandy clay loam.

Gray-Brown Podzolic soils

Gray-Brown Podzolic soils are zonal soils that have a comparatively thin organic covering underlain by organic-mineral layers. A thin A_2 layer rests on an illuvial brown horizon that is moderately fine textured. This brown horizon becomes lighter colored as depth increases. These soils developed under a deciduous forest in a temperate, moist climate. The solum varies in thickness but seldom exceeds 4 feet.

In Fayette County the Memphis and Lexington soils are representative Gray-Brown Podzolic soils. Loring and Grenada soils are Gray-Brown Podzolic soils that have some characteristics of Planosols. The Loring soils have a weak fragipan, and the Grenada soils a stronger one. All soils in this group are medium acid to strongly acid.

MEMPHIS SERIES: Memphis soils are well drained and have formed in thick, silty Peorian loess. They have a brown, very friable silt loam surface layer and a brown to reddish-brown fine silty clay loam and silt subsoil. The structure of the subsoil is moderate to strong, medium, and subangular blocky. In the B horizon, below the zone where most clay has accumulated, the texture is silt loam. The lower part of the B horizon is massive. In most places Farmdale loess underlies the B horizon.

Memphis soils are on nearly level to steep uplands, generally on the highest parts of slopes. The lower parts are generally occupied by more poorly drained soils in the Memphis catena. The Peorian loess appears to be thicker on the higher parts of broad ridges, particularly in the less dissected western half of the county, which is nearer to the source of the loess than the eastern half.

LEXINGTON SERIES: Lexington soils have a very friable, brown, silt loam surface layer and a brown to reddish-brown, firm, silty clay loam subsoil. The structure of the subsoil is moderate, medium, and subangular blocky. Lexington soils have developed in loess that is less than 42 inches thick and is underlain by sandy Coastal Plain material. In most places a soil similar to Ruston or Eustis soils had already developed by the time the loess was laid down. A zone can be seen in the profile where the Lexington soil mixed with the soil developed in the Coastal Plain. This mixing was caused by the processes of soil development, or by whipping action or other agitation that occurred when the loess was laid down. As a result, the Lexington soil has, below the solum, a zone that ranges from silt loam or loam to sandy clay loam. Thus, Lexington soils intergrade toward Red-Yellow Podzolic soils.

LORING SERIES: Loring soils are the moderately well to well drained members of the catena that includes the well drained Memphis, the moderately well drained Grenada, the somewhat poorly drained Calloway, and the poorly drained Henry soils. The Loring soils are on level to moderately steep uplands. The surface layer is similar to that of Memphis soils and is brown, very friable silt loam. The subsoil is firm, brown silty clay loam and silt loam. The structure of the subsoil is moderate, medium, and subangular blocky. Loring soils have mottles or a weak fragipan at a depth of 30 to 36 inches and therefore grade toward Planosols.

GRENADA SERIES: Grenada soils are the most extensive soils of the county. They have developed in thick or moderately thick loess in level to strongly sloping parts of uplands. These soils are moderately well drained and have a fragipan. The surface layer is brown, very friable silt loam, and the subsoil is brown to yellowish-brown, friable to firm heavy silt loam or light silty clay loam. The fragipan is at a depth of about 24 to 30 inches. The structure of the B_2 horizon is weak to moderate, medium, and subangular blocky. Microstructure in the B_m horizon is weak, coarse and medium, and blocky. This microstructure is within polygons 8 or 10 inches in diameter and, in most places, is in Farmdale loess. The A horizon and that part of the B horizon above the pan are in Peorian loess. Below the B_2 horizon, texture is dominantly silt loam, although streaks and patches of clay are on the caps and sides of the polygons. Tongues of silt and clay are between the polygons. These tongues are mainly white and extend downward to the bottom of the pan, which is normally at a depth of 6 to 8 feet.

Planosols

This great soil group is intrazonal. It consists of soils having one or more horizons that contrast sharply with adjacent horizons and are cemented, compacted, or high in clay. All Planosols in Fayette County have a fragipan, which is a very compact layer that is low in clay. The Planosols, and most other soils in Fayette County with a fragipan, have developed in loess. Relief, parent material, and time were probably dominant in the formation of the Planosols in the county because they formed in the same climate and under similar vegetation as most zonal soils that developed in loess. Calloway soils and Henry soils are the only Planosols in Fayette County.

HENRY SERIES: This series consists of poorly drained soils on gentle slopes or flats or in depressions. Henry soils generally receive seepage water and runoff from nearby slopes. They formed in thick loess and have a very friable, light brownish-gray surface layer that is underlain by gray silt loam, mottled with yellowish brown. In places a layer of dark-gray, firm silty clay loam is at a depth of about 18 inches. This layer is thick and continuous in some places. In other places the silty clay loam is discontinuous and is mostly along the ped faces and in root channels. In places the clay has moved below a depth of 5 feet. The soil is in the form of balls or is in seams. The structure of the subsoil is weak, medium and coarse, and blocky. The pan varies according to the moisture content but is generally compact and brittle.

CALLOWAY SERIES: This series consists of somewhat poorly drained Planosols that have a fragipan. Calloway soils formed in loess on level to gently sloping uplands and terraces. The surface layer is brown, very friable silt loam, and the subsoil is light brownish-gray and yellowish-brown, mottled, friable silt loam. In most places the B_2 horizon is underlain by very friable, gray silt loam and that, in turn, by a zone of maximum clay accumulation. This zone is part of the pan.

Low-Humic Gley soils

Low-Humic Gley soils are intrazonal. They are somewhat poorly drained to poorly drained and have a very thin surface horizon that is moderately high in organic matter. Underlying the surface horizon are gray and brown mineral horizons that differ little in texture. The

Waverly soils are the only Low-Humic Gley soils in Fayette County.

WAVERLY SERIES: Waverly soils are poorly drained, gray soils on bottoms. These soils are in recently deposited silty alluvium that is 12 inches to 20 feet thick and generally overlie older, poorly drained, silty material.

Regosols

Regosols are azonal soils that consist of deep, unconsolidated material in which no distinct soil characteristics have developed. Those in this county formed in thick beds of sand and loamy sand. Eustis soils are the only Regosols in Fayette County.

EUSTIS SERIES: Eustis soils occur closely with Ruston soils but are not so well developed below the A horizon. They developed in sandy material of the Coastal Plain, and their surface layer and subsoil are brown, single-grain sand.

Alluvial soils

This great soil group is azonal. Alluvial soils are formed in alluvium that was recently transported and deposited and has been changed little or none by soil-forming processes. In Fayette County the Collins and Vicksburg are representative Alluvial soils, and the Falaya are Alluvial soils that have some properties of Low-Humic Gley soils.

COLLINS SERIES: Collins soils are well drained and moderately well drained and formed in recently deposited silty and sandy alluvium that washed from Memphis, Loring, Grenada, and Henry soils. Collins soils are on bottoms and along narrow drainageways.

FALAYA SERIES: Falaya soils are somewhat poorly drained, nearly level soils on bottoms. These soils are in recently deposited silty and sandy alluvium that washed from Memphis, Loring, Grenada, Calloway, and Henry soils and from materials of the Coastal Plain. The silty alluvium is 8 inches to about 20 feet thick and is underlain by silty or sandy material.

VICKSBURG SERIES: Vicksburg soils are well drained and formed in material that was recently deposited on bottoms. This recent alluvium washed mainly from Memphis and Loring soils and is about 4 to 20 feet thick. It overlies sandy material of the Coastal Plain.

General Nature of the County

This section tells briefly the early history of Fayette County; describes physiography, relief, drainage, and climate; and gives some facts about agriculture.

History

In 1822 the first white settlers arrived from Virginia in the area that is now Fayette County. Other settlers came in rapidly, mostly from the Carolinas, Virginia, eastern Tennessee, and other areas to the east. The county was organized in 1824 and was named for the Marquis de La Fayette.

Because the soils and the climate were suitable for cotton, much cotton has been grown since the county was settled. The population of Fayette County was 8,659 in 1830 and by 1950 had increased to 27,535.

Transportation, Markets, and Community Facilities

Fayette County has adequate railroads and Federal, State, and county roads. One line of the Louisville and Nashville Railroad passes through Braden in the northwestern part of the county. Another line of that railroad passes through the central part of the county and has sidings at Hickory Withe, Oakland, Warren, Somerville, and Laconia. A line of the Southern Railway System crosses the southern part of the county and has sidings at Rossville, Moscow, and La Grange.

Two Federal highways cross the county. U.S. Highway No. 64 runs east and west and crosses the central part of the county. U.S. Highway No. 70–79 crosses the northwestern part. State Route 57 runs east and west across the southern part of the county, and State Routes 59 and 76 cross the county in a north-south direction and pass through Somerville. Practically all parts of the county can be reached on the paved State roads and graveled county roads. The main roads in the county are shown on the soil map in the back of this report.

Although industries are few in the county, agricultural products are processed in numerous cotton gins and in a feed-mixing mill. Other farm products are disposed of at reasonably good local markets or at pickup points. Agricultural research is carried on at the Ames Plantation in Fayette County under the direction of the University of Tennessee Agricultural Experiment Station.

Churches and schools are conveniently located to serve all parts of the county.

Climate [6]

Fayette County generally has hot summers and mild winters. The average annual precipitation of 53.12 inches is somewhat higher than the statewide average of 50.5 inches. Additional climatic data are given in table 9. During the summer the average daily minimum temperature is between about 65° and 70° F., and the average daily maximum is near 90°. In winter the average daily temperature ranges from about 32°, or near freezing, to between about 50° and 55°. On the average, temperature exceeds 90° on about 69 days each year, drops below 32° on about 60 days, and falls to 0° or below on about 1 day.

Growing season and freezing temperatures

The growing season, or the period between the last freezing temperature in spring and the first in fall, ranges from about 200 days in the southeastern part of the county to about 220 days in the northwestern part. At Moscow the average date of the last freezing temperature in spring is April 2 and that of the first freezing temperature in fall is October 24.

To determine from figure 15 the probability that there will be a temperature at Moscow of 28° or lower before October 21, lay a ruler horizontally on the October 21 line. Look up from the point where the ruler crosses the diagonal 28° line, and read the percentage listed at the top of the graph. For this example the probability is about 10

[6] This section was prepared by R. R. DICKSON, State climatologist, U.S. Weather Bureau, Nashville, Tenn., and D. K. SPRINGER, assistant State soil scientist, Soil Conservation Service.

TABLE 9.—*Temperature and precipitation at Moscow, Fayette County, Tennessee*

[Elevation 352 feet; latitude 35°05″ N., longitude 89°24″ W.]

Month	Temperature [1]			Precipitation [2]			
	Average	Absolute maximum	Absolute minimum	Average	Minimum monthly	Maximum monthly	Average snowfall
	°F	°F	°F.	Inches	Inches	Inches	Inches
January	42. 6	80	−11	6. 18	1. 28	14. 98	2. 6
February	44. 8	81	14	5. 44	1. 39	14. 23	1. 1
March	52. 4	86	10	5. 76	1. 48	12. 32	0. 2
April	61 2	90	27	4. 53	. 93	10. 62	0
May	69. 2	98	33	4. 11	. 41	11. 99	0
June	77. 3	107	44	4. 21	. 00	11. 34	0
July	80. 3	106	46	4. 01	1. 08	8. 99	0
August	79. 6	106	45	3. 51	. 48	8. 42	0
September	72. 9	105	29	3. 08	. 08	10. 71	0
October	62. 4	95	21	2. 78	. 00	7. 98	0
November	50. 4	86	5	4. 38	. 90	11. 79	0. 2
December	43. 3	80	2	5. 13	1. 17	12. 89	0. 5
Year	61 4	107	−14	53. 12	. 00	14. 98	4. 6

[1] Temperature measured 4.5 feet above the ground in standard instrument shelters of the U.S. Weather Bureau On clear, calm nights temperature at shelter level is usually about 5 degrees warmer than air temperature near the ground; this difference can amount to as much as 12 degrees. Average temperature is based on a record of the period 1931–1955; highest temperature and lowest temperature based on a record of the period between June 1920 and December 1958.

[2] Average precipitation based on a record of the period 1931–1955; snowfall based on an 18-year record between 1931 and 1952; driest months were October 1924 and June 1953; wettest month was January 1937.

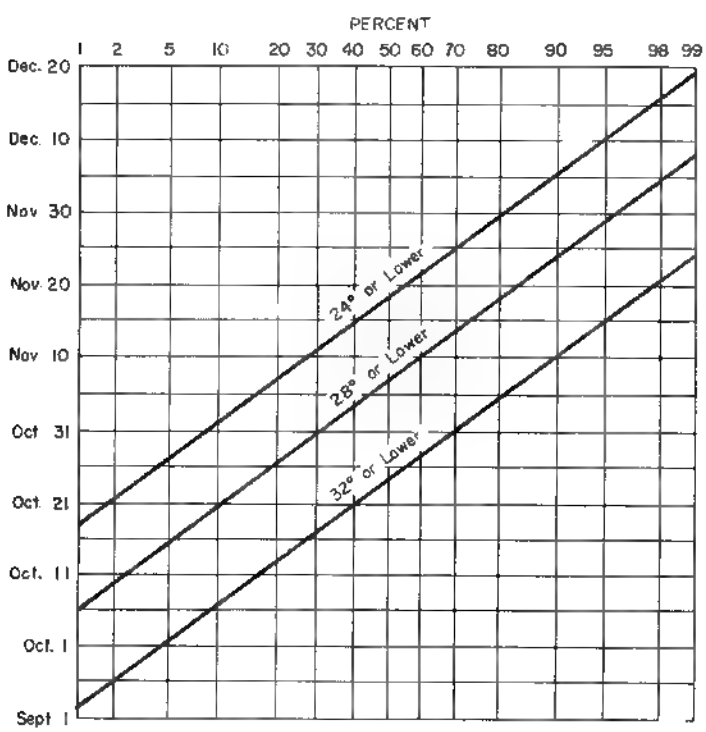

***Figure 15.*—Probability that the temperature at Moscow will be 24° F. or lower, 28° or lower, or 32° or lower before any date in fall.**

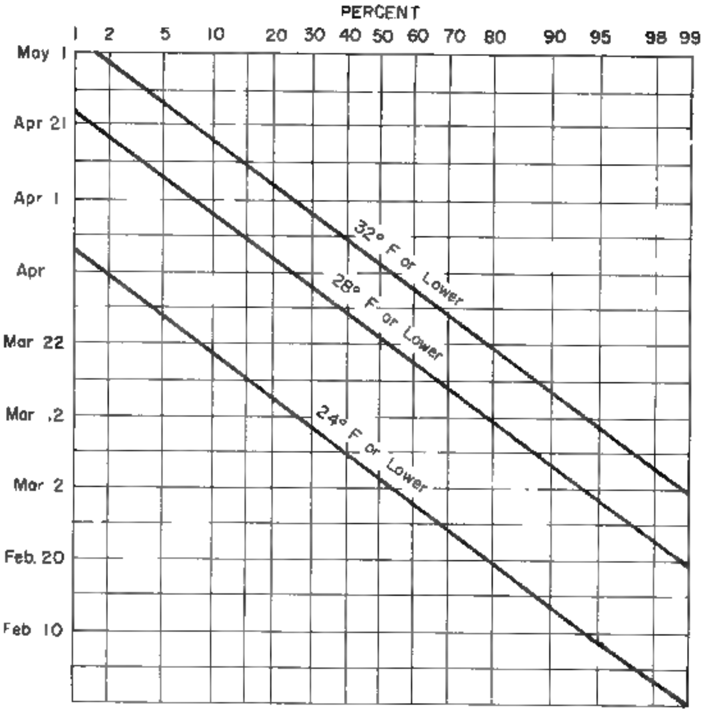

***Figure 16.*—Probability that the temperature at Moscow will be 24° F. or lower, 28° or lower, or 32° or lower after any date in spring.**

percent. In the same manner you can determine from figure 16 the probability that the temperature listed will occur after any date in spring.

At plant height a freezing temperature between 28° and 32° causes little or no damage to most plants. It may kill tomatoes, peppers, and other tender plants, but plants that have been hardened by drought or by a low temperature on sunny days will not be damaged. However, the anthers of small grains and both anthers and pistils of strawberries and other flowering plants may be destroyed. Thus, yields may be reduced even though the plants are only slightly damaged (*2*).

When the temperature is between 24° and 28°, most plants are damaged. Tender plants may be destroyed, and fruit blossoms and semihardy plants may be heavily damaged.

A temperature of 24° or lower badly damages all plants.

The soil in Fayette County seldom freezes to a depth of more than 3 inches, and it seldom stays frozen to that depth for more than 5 or 6 days. The average soil temperature at a depth of 4 inches at Jackson, Tenn., is plotted in curves in figure 17 for the years 1949, 1950, and 1951. In these years the soil was coldest in February 1951.

More precipitation occurs in winter and early in spring than in other seasons because large storms are more frequent. Precipitation is lightest in fall because high pressure fronts move slowly across the county and suppress rain.

Evapotranspiration

The growth of plants depends to a large degree on the amount of available water in the soil. This water decreases when more of it is lost through internal drainage and evapotranspiration than is supplied by precipitation

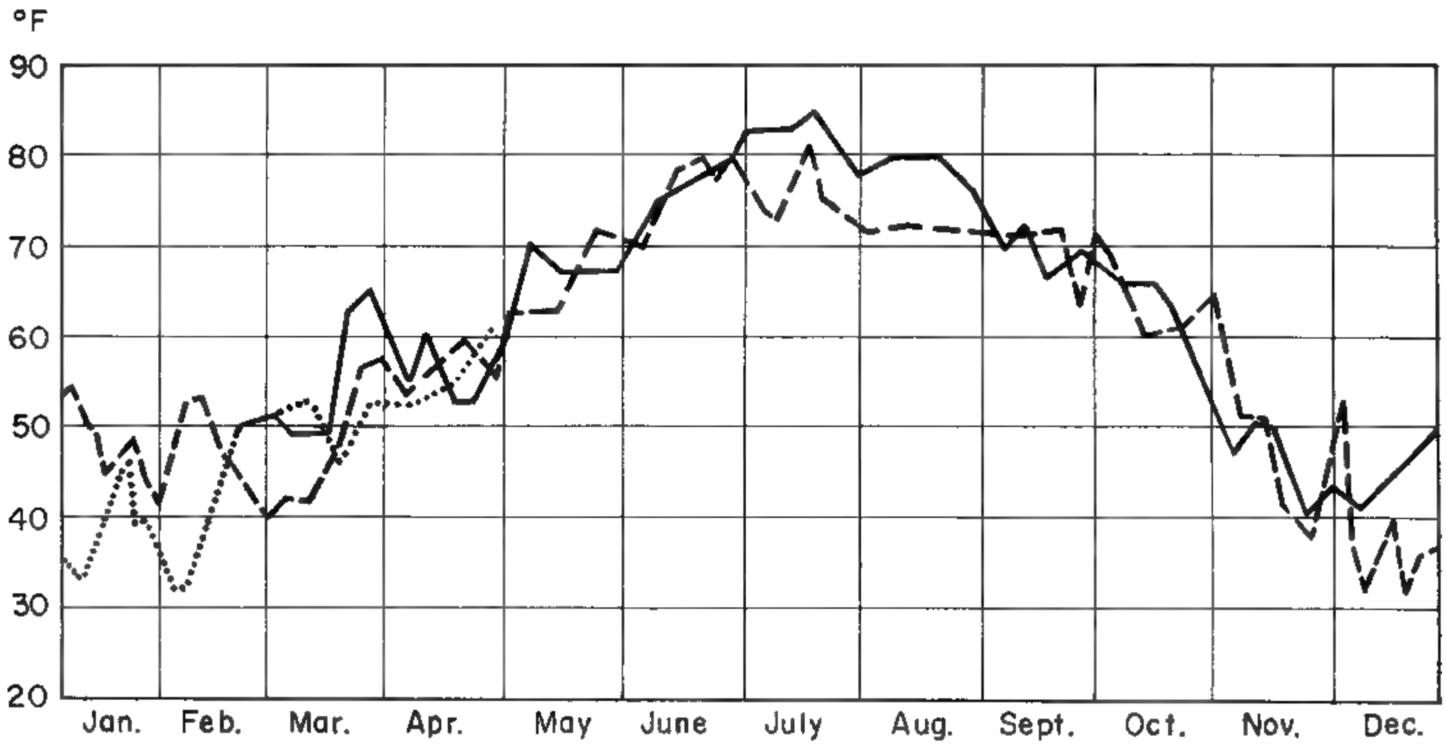

***Figure 17.*—Soil temperature at depth of 4 inches at Jackson, Tenn. Solid line, 1949; dashed line, 1950; dotted line, 1951.**

or by irrigation. Figure 18 shows the average water balance at Moscow throughout the year. The data used for figure 18 were computed by the Thornthwaite method (*6*). The available soil moisture at field capacity was assumed to be 4 inches. Field capacity is the largest amount of water that a soil will hold under conditions of free drainage after the excess water has drained away following a rain or an irrigation that has wet the whole soil.

Evapotranspiration is the loss of water from soil through transpiration by plants and through evaporation. Potential evapotranspiration is an estimate of how much moisture is lost from a moist soil covered with vegetation. Actual evapotranspiration is the actual loss of soil moisture. It is less than the potential evapotranspiration because, as a soil dries, the moisture remaining in the soil is more tightly held and, therefore, is less readily removed by transpiration and evaporation.

The precipitation and evapotranspiration curves in figure 18 show moisture conditions at the end of each month, not daily conditions. In the average year from January through May, precipitation is greater than the estimated actual evaporation. From June through September the loss of soil moisture, or estimated actual evapotranspiration, exceeds precipitation, and the soil progressively dries out. By the end of September, on the average, 3.43 inches of the original 4 inches of available moisture have been removed from the soil. This amount is indicated by a sum of the vertical distances from the precipitation line to the points on the June, July, August, and September lines where the actual evapotranspiration curve crosses those lines. During this period from June through September, vigorously growing plants draw heavily on the moisture in the soil. Maximum plant growth, however, can be maintained if water is supplied by irrigation in June, July, August, and September in amounts indicated by the vertical distances between the actual and potential evapotranspiration curves.

By October precipitation again exceeds evapotranspiration, and the excess water begins to recharge the soil. This recharge is completed in November; then part of the excess water runs off the surface, and part is added to the ground water.

Drought days

A knowledge of the frequency and distribution of drought days during the growing season is useful in selecting crops and planting dates for individual soils. This knowledge is also useful in indicating whether a soil will hold enough water to supply a selected crop through the growing season. For example, drought at the time corn is tasseling reduces yields. The risk of this drought can be lessened by planting corn early, by planting corn on soils with high available moisture capacity, or by irrigating.

Table 10 gives, at different levels of probability, the number of drought days each month from April through October for soils with different available water capacity. If the available water capacity of a soil is known, table 10 can be used to determine the probability of that soil supplying enough water for growing plants during the growing season. The moisture capacity of the soils in the county is given in the Available Water Capacity column in table 4 of the subsection "Engineering Uses of Soils." Thus, the advisability of planting a crop on a particular soil can be judged by (1) determining from table 4 the amount of available moisture that a soil can

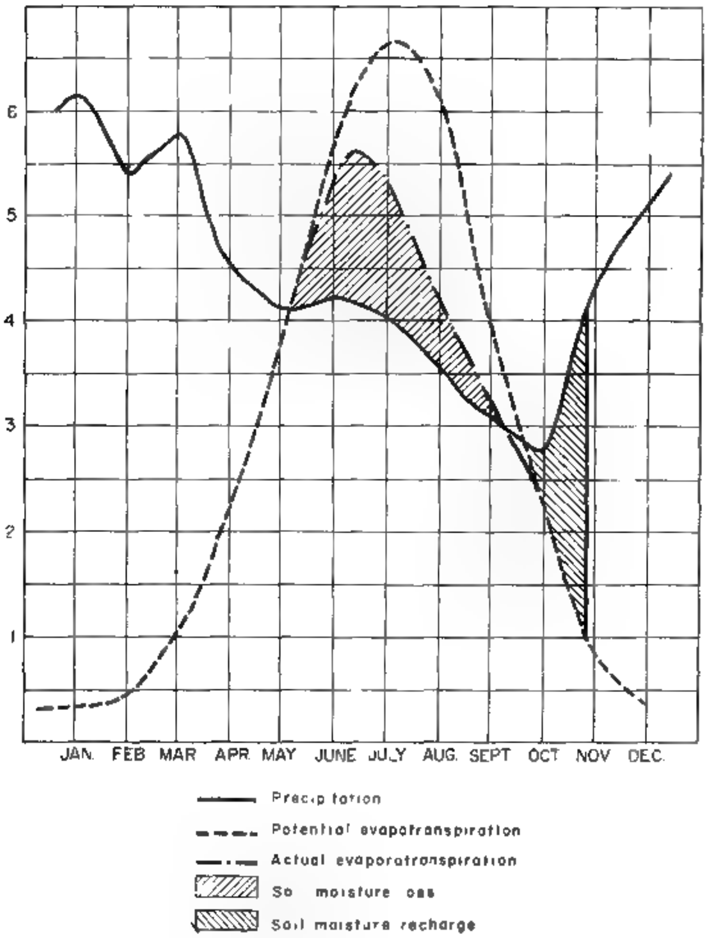

***Figure 18.*—Average precipitation and evapotranspiration at Moscow, Tenn., computed from data recorded in the period from 1931 through 1955. Available water-holding capacity assumed to be 4 inches.**

hold within the root zone of the selected crop, and (2) reading from table 10 the various chances of drought during the growing season of the crop selected.

The information in table 10 relates to the occurrence of drought days in western Tennessee (*8*). This information is from a recent study based on daily precipitation, on the capacity of the soil to store available moisture, and on estimated daily evapotranspiration. In table 10 a drought day is a day on which the supply of moisture available to plants is exhausted. Available moisture capacity is the amount of moisture that a soil can hold available to plant roots. Evapotranspiration values used to obtain the data in table 10 were computed by the Penman method (*8*). In determining changes in soil moisture, evapotranspiration is assumed to be at the potential rate, which is the rate for a moist soil.

In summer, grazing is less likely to be scanty if bermudagrass, sudangrass, lespedeza, millet, and other warm-season plants are grown on soils that have a high available moisture capacity. Soils with a low moisture capacity have many drought days early in fall. Because of drought, fall seeding may be delayed and the growth of fall-seeded crops slowed. Consequently, the danger of winterkilling is increased.

TABLE 10.—*Probabilities of drought days on soils of different available moisture capacity*

[Dashes indicate less than 1 drought day]

Month [1]	Probability	Minimum drought days if soil has available moisture capacity in the root zone of—				
		1 inch	2 inches	3 inches	4 inches	5 inches
April	1 in 10	14	7	--	--	--
	2 in 10	11	2	--	--	--
	3 in 10	9	--	--	--	--
	5 in 10	5	--	--	--	--
May	1 in 10	22	17	12	5	--
	2 in 10	18	13	6	--	--
	3 in 10	16	10	3	--	--
	5 in 10	11	5	--	--	--
June	1 in 10	29	29	25	22	18
	2 in 10	25	23	21	17	11
	3 in 10	23	20	18	13	7
	5 in 10	18	14	11	6	--
July	1 in 10	29	29	29	29	27
	2 in 10	25	25	23	22	21
	3 in 10	23	21	19	17	16
	5 in 10	20	15	13	10	8
August	1 in 10	29	29	29	28	26
	2 in 10	26	25	25	24	23
	3 in 10	24	22	21	20	20
	5 in 10	20	17	15	14	13
September	1 in 10	27	26	26	26	26
	2 in 10	23	22	22	21	21
	3 in 10	20	19	19	18	18
	5 in 10	16	13	12	11	10
October	1 in 10	25	24	22	22	22
	2 in 10	21	20	18	18	18
	3 in 10	17	16	14	14	14
	5 in 10	12	9	6	5	5

[1] January, February, March, November, and December not shown because crops are rarely damaged by drought in these months.

Water Supply

Water for household use is supplied by drilled and dug wells. The dug wells generally supply water in the valleys, for there the water table is high and 20- to 30-foot wells are permanent. In the hilly uplands, wells are generally drilled because the water table is as much as 150 feet below the surface in dry weather. Wells are also drilled in other places if large quantities of water are needed.

Ponds are usually the best source of water for livestock because there are only a few springs and a few large, steadily running streams, such as the Wolf and Loosahatchie Rivers. But ponds are common throughout the county because most farms have sites suitable for ponds.

Physiography, Geology, Relief, and Drainage

Fayette County lies in the western part of the Plateau slope of western Tennessee (*3*). It is underlain by marine sediments of the Coastal Plain. These sediments were laid down during the Tertiary period and make up the Grenada and Holly Springs formations. The Holly

Springs formation is older than the Grenada and crops out in the southeastern part of the county. The Grenada formation crops out throughout the rest of the county.

All of the county was covered by loess that was deposited in three layers during the Pleistocene epoch of the Quaternary period (*3*). The three layers are the Loveland, the Farmdale, and the Peorian loess. Of these, the Loveland loess is the oldest layer and is intermittent in the county. The Farmdale loess is next in age. It is darker colored than the Loveland and is a fairly uniform layer, 3 to 4 feet thick. The Peorian loess is the youngest. Most soils on uplands developed in Peorian loess, but in most places soil development extends into the Farmdale loess. On the uplands, soils were developed in the Coastal Plain material and drainageways were formed before the areas were covered with loess.

Because it was blown from the west, the loess in the western part of the county is thicker than that in the eastern part. On similar slopes, the loess has an average thickness of about 12 feet in the western part of the county and about 7 feet in the eastern part.

The county is a variously dissected plain. Part of the county is highly dissected and generally hilly, but most of it is only moderately dissected and generally rolling. The average altitude is about 400 feet above sea level, but the range in altitude is from about 270 feet near Galloway to about 600 feet near La Grange (*3*).

Drainage is well established in the county. Streams are numerous, although many of the smaller streams are intermittent. All of the county is in the Mississippi River watershed, and all the larger streams flow westward. The Wolf River and Nonconnah Creek drain the southern part of the county. The Loosahatchie River and its tributary streams drain the central and northwestern parts, and tributary streams of the Hatchie River drain the northeastern part. The Hatchie River flows through adjacent Tipton, Haywood, and Hardeman Counties. Flood plains in Fayette County are rather large, and consist of silty loess and sandy marine sediments washed from nearby uplands and terraces.

Agriculture

According to the U.S. Census of Agriculture, there were 3,451 farms in Fayette County in 1959. These farms occupied 375,671 acres, or 83.4 percent of the total land area of about 450,560 acres. The average size of a farm is 108.9 acres, but several farms in the county are larger than 1,000 acres. The 1959 census lists the number of farms by size (in acres) as follows:

	Number of farms
Under 10	348
10 to 49	1,789
50 to 69	251
70 to 99	219
100 to 139	257
140 to 179	122
180 to 219	98
220 to 259	61
260 to 499	183
500 to 999	80
1,000 and over	43

The main enterprise in Fayette County is agriculture, and the main crop is cotton. There are relatively few livestock and dairy farms.

In 1959 there were 844 miscellaneous and unclassified farms in Fayette County. The rest are classified according to type as follows:

	Number of farms
Field crop	2,362
Cotton	2,336
Cash grain	26
General	71
Vegetable	1
Dairy	20
Poultry	5
Livestock other than dairy or poultry	148

Farms are also listed in the 1959 census as commercial, part time, and part retirement. The number of commercial farms are listed in six economic classes, on the basis of the value (in dollars) of products sold, as follows:

	Number of farms
40,000	21
20,000 to 39,999	44
10,000 to 19,999	85
5,000 to 9,999	256
2,500 to 4,999	991
50 to 2,499	1,220

In addition to the commercial farms, there were 370 part-time farms in 1959. A part-time farm is one on which the operator is less than 65 years old and has worked off the farm 100 days or more, or one on which the nonfarm income of the operator and his family is greater than the value of the farm products.

TABLE 11.—*Acreage of the principal crops in 1954 and 1959*

Crop	1954	1959
	Acres	*Acres*
Corn for all purposes	45,529	32,513
Harvested for grain	40,837	31,650
Cut for silage	1,732	502
Hogged, grazed, or cut for fodder	2,960	361
Cotton harvested	47,190	41,479
Sorghum harvested for grain or seed	277	305
Sorghum cut for silage	1,967	1,040
Sorghum (hogged, grazed, or cut for dry forage)	1,102	323
Small grains harvested:		
Wheat	142	22
Oats	2,286	462
Barley	123	20
Rye	36	(1)
Soybeans for all purposes:		
Harvested for beans	787	5,060
Cut for hay	1,325	148
Hogged, grazed, or cut for silage	297	68
Plowed under for green manure	186	8
Cowpeas grown alone for all purposes except processing:		
Harvested for dry peas	893	779
Plowed under for green manure	53	1,119
Cut for hay	2,151	330
Hogged, grazed, or cut for silage	319	202
Hay crops, total	11,633	14,646
Lespedeza cut for hay	8,562	12,888
Clover, timothy, and mixtures of clover and grasses cut for hay	316	560
Small grains cut for hay	761	317
Alfalfa cut for hay	107	247
Other hay cut	1,887	634
Lespedeza seed harvested	349	1,486
Vegetables harvested for sale	167	6,140

[1] Not reported.

Part-retirement farms amounted to 366. A part-retirement farm is one that has an operator 65 years old or older.

Tenants operated 68 percent of the farms in 1959. The census lists the number of farms by tenure of operator as follows:

	Number of farms
Full owners	687
Part owners	403
Managers	15
All tenants	2,346
Cash tenants	106
Share-cash tenants	15
Crop-share tenants	576
Livestock-share tenants	15
Croppers	1,223
Other and unspecified tenants	411

The acreage of principal crops grown in Fayette County in 1954 and 1959 are listed in table 11 (on page 69).

Literature Cited

(1) American Association of State Highway Officials.
1955. standard specifications for highway material and methods of sampling and testing. Ed. 7, 2 v., illus. Washington, D.C.

(2) Decker, Wayne L.
1955. late spring and early fall killing freezes in missouri. Climatic Atlas of Missouri No. 2, Mo. Agr. Expt. Sta., Bul. 649, 15 pp.

(3) Pond, W. F.
1933. geologic map of tennessee. Tenn. Dept. Ed., Div. Geol

(4) Simonson, Roy W.
1949. genesis and classification of red-yellow podzolic soils. Soil Sci. Soc. Amer. Proc. 14: 316–319.

(5) Soil Survey Staff.
1951. soil survey manual. U.S. Dept. Agr. Handb. 18, 503 pp., illus.

(6) Thornthwaite, C. W., and Mather, J. R.
1955. the water balance, publications in climatology. Drexel Inst. Tech., Lab. Climatology, 8 v., No. 1, 104 pp.

(7) Thorp, James, and Smith, Guy D.
1949. higher categories of soil classification: order, suborder, and great soil groups. Soil Sci. 67 (2): 117–126.

(8) Van Bavel, C. H. M.
1959. drought and water surplus in agricultural soils of the lower mississippi valley area. U.S. Dept. Agr., Tech. Bul. 1209, 93 pp., illus.

(9) Waterways Experiment Station, Corps of Engineers.
1953. the unified soil classification system. Tech. Memo. 3-357, 3 v.

Glossary

Acidity. See reaction.

Alluvium. Fine soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern.

Available water capacity. The amount of water that a soil can take in and hold available to plants.

Base saturation. The degree to which a material is saturated with exchangeable cations other than hydrogen, expressed as a percentage of cation-exchange capacity.

Catena, soil. A sequence, or "chain," of soils on a landscape, developed from one kind of parent material but having different characteristics because of differences in relief and drainage.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter (0.000079 inch) in diameter. As a textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex, soil. A mapping unit consisting of different kinds of soils that occur in such small individual areas or in such an intricate pattern that they cannot be shown separately on a publishable soil map.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent; soil does not hold together in a mass.

Friable.—When moist, soil crushes easily under gentle to moderate pressure between the thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, soil crushes under moderate pressure between the thumb and forefinger, but resistance is distinctly noticeable

Plastic.—When wet, soil is readily deformed by moderate pressure but can be pressed into a lump; forms a wire when rolled between thumb and forefinger.

Sticky.—When wet, soil adheres to other material; tends to stretch somewhat and pull apart, rather than pull free from other material.

Hard.—When dry, soil is moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft. When dry, soil breaks into powder or individual grains under slight pressure.

Cemented.—Hard and brittle; soil is little affected by moistening.

Erosion. The wearing away of the land surface by wind, running water, and other geologic agents.

Fragipan. A dense, brittle, subsurface horizon that is very low in organic matter and clay and is rich in silt or very fine sand. The layer appears cemented when dry, is hard or very hard, and has a higher bulk density than the horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick, and they generally occur below the B horizon at a depth of 15 to 40 inches from the surface.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. The relative position of the several horizons in a typical profile and their nomenclature follows—

A_0 Organic debris, partly decomposed or matted.
A_1 A dark-colored horizon having a fairly high content of organic matter mixed with mineral matter.
A_2 A light-colored horizon that, where podzolized, is often the zone of maximum leaching; absent in wet, dark-colored soils.
A_3 Transitional to B horizon but more like A than B; sometimes absent.
B_1 Transitional to B horizon but more like B than A; sometimes absent.
B_2 A usually darker colored horizon that, where podzolized, is often the zone of maximum illuviation.
B_3 Transitional to C horizon.
C Slightly weathered parent material; absent in some soils.
D Underlying substratum.

The A horizons make up a zone of eluviation, which is a leached zone. The B horizons make up a zone of illuviation, in which clay and other materials have accumulated. The A and B horizons, taken together, are called the solum, or true soil.

Loess. A fine-grained eolian deposit consisting dominantly of silt-sized particles.

Morphology, soil. The makeup of the various horizons of the soil profile. This includes texture, structure, consistence, color, and other physical, chemical, mineralogical, and biological properties.

Mottled. Irregularly marked with spots that vary in color, number, and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Contrast—*faint*, *distinct*, and *prominent;* abundance—*few*, *common*, and *many;* and size—*fine*, *medium*, and *coarse*. The size measurements are *fine*, less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium*, ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse*, more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Permeability. The quality of a soil horizon that enables water and air to move through it. Terms used to describe permeability are as follows: *Very slow*, *slow*, *moderately slow*, *moderate*, *moderately rapid*, *rapid*, and *very rapid*.

Poorly graded soil (engineering). A soil material consisting mainly of particles nearly the same size. Because there is little difference in size of the particles in poorly graded material, density can be increased only slightly by compaction.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material. See also Horizon, soil.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. In words the degrees of acidity and alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4 to 7.8
Very strongly acid	4.5 to 5.0	Moderately alkaline	7.9 to 8.4
Strongly acid	5.1 to 5.5	Strongly alkaline	8.5 to 9.0
Medium acid	5.6 to 6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1 to 6.5		
Neutral	6.6 to 7.3		

Relief. The elevations or inequalities of a land surface, considered collectively.

Sand. Individual rock or mineral fragments having diameters ranging from 0.05 millimeter to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Series, soil. A group of soils developed from a particular type of parent material and having genetic horizons that, except for texture of the surface layer, are similar in differentiating characteristics and in the arrangement in the profile.

Silt. Individual mineral soil particles having diameters that range from 0.002 millimeter to 0.05 millimeter; it is the size class between clay and sand. Soil of the silt textural class is 80 percent or more silt and not more than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over periods of time.

Solum (plural—sola). The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in a mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying parent material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are *platy* (laminated), *prismatic* (vertical axis of the aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. That part of the soil below plow depth in which roots normally grow.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness; the plowed layer.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, lake, or sea. Stream terraces are frequently called *second bottoms* as contrasted to *flood plains*, and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. (See also Clay, Sand, and Silt.) The basic textural classes in order of increasing proportions of fine particles are as follows: Sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Type, soil. A subdivision of the soil series that is made on the basis of differences in the texture of the surface layer.

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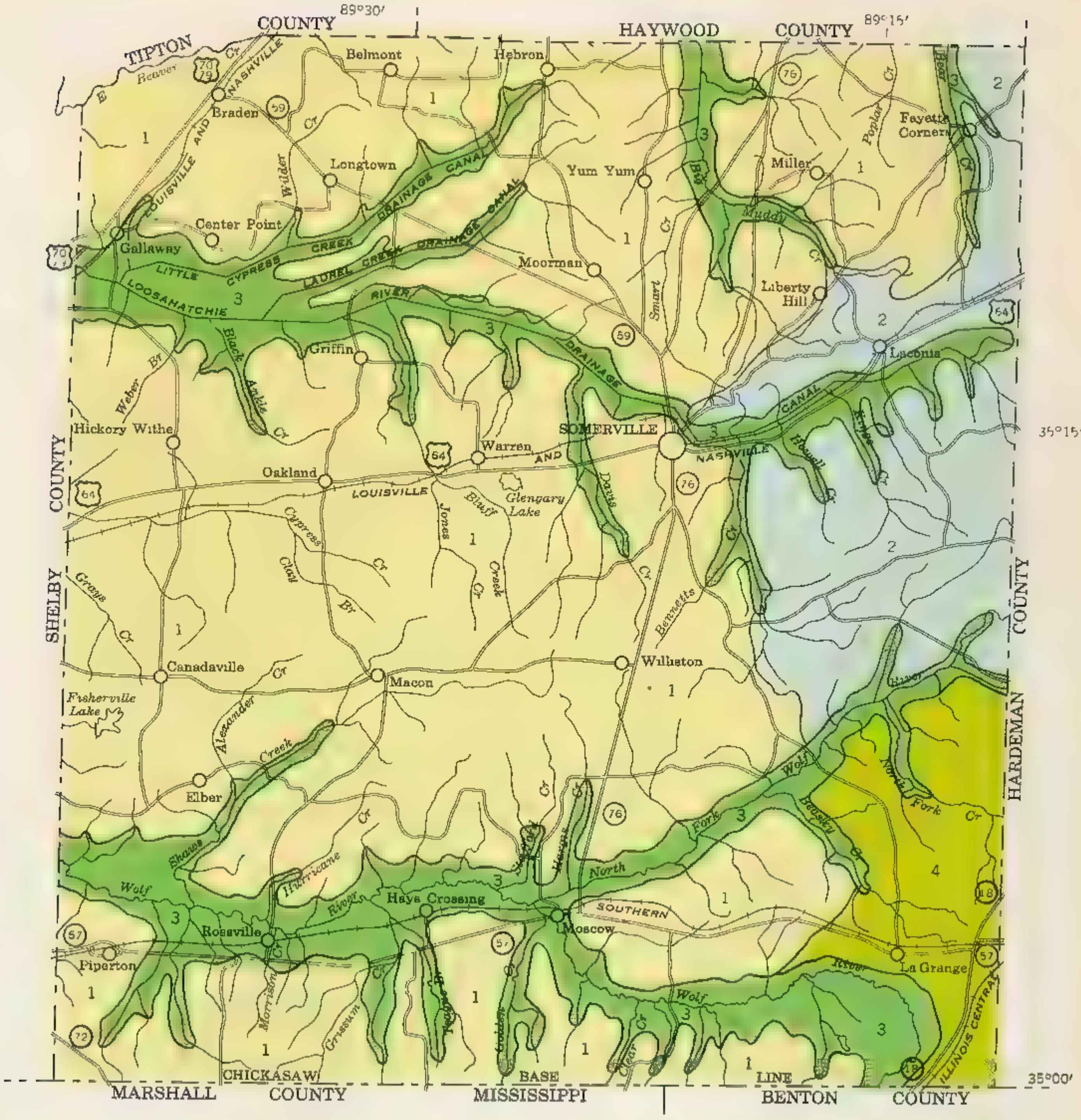
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TENNESSEE AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
FAYETTE COUNTY, TENNESSEE



1 0 1 2 3 4 Miles

SOIL ASSOCIATIONS

1 Grenada-Memphis-Loring association: Undulating to rolling soils in thick loess

2 Lexington-Ruston association: Rolling to steep soils in thin loess, or in sandy materials of the Coastal Plain

3 Waverly-Falaya-Collins association: Nearly level poorly drained to moderately well drained soils on bottom lands

4 Loring-Memphis-Lexington-Ruston association: Rolling to hilly soils in loess of variable thickness, or in sandy materials of the Coastal Plain

March 1962

GUIDE TO MAPPING UNITS

Map symbol	Mapping unit	Page	Capability unit Symbol	Capability unit Page	Woodland suitability group Number	Woodland suitability group Page
CaA	Calloway silt loam, 0 to 2 percent slopes	6	IIIw-1	27	3	54
CaB	Calloway silt loam, 2 to 5 percent slopes	6	IIIw-1	27	3	54
CaB2	Calloway silt loam, 2 to 5 percent slopes, eroded	6	IIIw-1	27	3	54
CbA	Calloway silt loam, terrace, 0 to 2 percent slopes	6	IIIw-1	27	3	54
CbB	Calloway silt loam, terrace, 2 to 5 percent slopes	7	IIIw-1	27	3	54
CbB2	Calloway silt loam, terrace, 2 to 5 percent slopes, eroded	7	IIIw-1	27	3	54
Cf	Collins fine sandy loam	8	I-3	24	4	54
Cm	Collins fine sandy loam, local alluvium	8	I-3	24	4	54
Co	Collins silt loam	7	I-3	24	4	54
Cu	Collins silt loam, local alluvium	7	I-3	24	4	54
Fa	Falaya fine sandy loam	8	IIIw-2	28	6	55
Ff	Falaya fine sandy loam, local alluvium	9	IIIw-2	28	6	55
Fm	Falaya silt loam	8	IIIw-2	28	6	55
Fu	Falays silt loam, local alluvium	8	IIIw-2	28	6	55
GaA	Grenada silt loam, 0 to 2 percent slopes	9	IIw-1	26	2	54
GaB	Grenada silt loam, 2 to 5 percent slopes	10	IIe-2	25	2	54
GaB2	Grenada silt loam, 2 to 5 percent slopes, eroded	9	IIe-2	25	2	54
GaB3	Grenada silt loam, 2 to 5 percent slopes, severely eroded	10	IIIe-2	27	2	54
GaC	Grenada silt loam, 5 to 8 percent slopes	10	IIIe-2	27	2	54
GaC2	Grenada silt loam, 5 to 8 percent slopes, eroded	10	IIIe-2	27	2	54
GaC3	Grenada silt loam, 5 to 8 percent slopes, severely eroded	10	IVe-2	29	2	54
GaD	Grenada silt loam, 8 to 12 percent slopes	10	IVe-2	29	2	54
GaD3	Grenada silt loam, 8 to 12 percent slopes, severely eroded	10	VIe-1	29	2	54
GbA	Grenada silt loam, terrace, 0 to 2 percent slopes	11	IIw-1	26	2	54
GbB	Grenada silt loam, terrace, 2 to 5 percent slopes	11	IIe-2	25	2	54
GbB2	Grenada silt loam, terrace, 2 to 5 percent slopes, eroded	11	IIe-2	25	2	54
GbB3	Grenada silt loam, terrace, 2 to 5 percent slopes, severely eroded	11	IIIe-2	27	2	54
GbC2	Grenada silt loam, terrace, 5 to 8 percent slopes, eroded	11	IIIe-2	27	2	54
GbC3	Grenada silt loam, terrace, 5 to 8 percent slopes, severely eroded	12	IVe-2	29	2	54
GgC	Grenada-Gullied land complex, 5 to 8 percent slopes	12	VIe-1	29	2	54
GgD	Grenada-Gullied land complex, 8 to 12 percent slopes	12	VIIe-1	30	2	54
Gn	Gullied land, sandy	12	VIIe-1	30	8	56
Gs	Gullied land, silty	12	VIIe-1	30	8	56
He	Henry silt loam	13	IVw-1	29	3	54
Ho	Henry silt loam, overwash	13	IVw-1	29	3	54
Ht	Henry silt loam, terrace	13	IVw-1	29	3	54
LbB	Lexington silt loam, 2 to 5 percent slopes	14	IIe-1	25	1	52
LbC	Lexington silt loam, 5 to 8 percent slopes	14	IIIe-1	26	1	52
LbD	Lexington silt loam, 8 to 12 percent slopes	14	IVe-1	28	1	52
LcB3	Lexington silty clay loam, 2 to 5 percent slopes, severely eroded	14	IIIe-1	26	1	52
LcC3	Lexington silty clay loam, 5 to 8 percent slopes, severely eroded	14	IVe-1	28	1	52
LcD3	Lexington silty clay loam, 8 to 12 percent slopes, severely eroded	14	VIe-1	29	1	52
LeD	Lexington-Ruston complex, 8 to 12 percent slopes	15	IVe-1	28	7	55
LeD3	Lexington-Ruston complex, 8 to 12 percent slopes, severely eroded.	15	VIe-1	29	7	55
LeF	Lexington-Ruston complex, 12 to 30 percent slopes	15	VIIe-1	30	7	55
LeF3	Lexington-Ruston complex, 12 to 30 percent slopes, severely eroded	15	VIIe-1	30	7	55
LfD	Lexington-Ruston-Gullied land complex, 8 to 12 percent slopes	15	VIe-1	29	7	55
LfF	Lexington-Ruston-Gullied land complex, 12 to 30 percent slopes	15	VIIe-1	30	7	55
LgD	Loring-Gullied land complex, 5 to 12 percent slopes	17	IVe-1	28	1	52
LgE	Loring-Gullied land complex, 12 to 20 percent slopes	17	VIe-1	29	1	52
LoA	Loring silt loam, 0 to 2 percent slopes	16	I-1	24	1	52
LoB	Loring silt loam, 2 to 5 percent slopes	16	IIe-1	25	1	52
LoB3	Loring silt loam, 2 to 5 percent slopes, severely eroded	16	IIIe-1	26	1	52
LoC	Loring silt loam, 5 to 8 percent slopes	16	IIIe-1	26	1	52
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded	17	IIIe-1	26	1	52
LoD	Loring silt loam, 8 to 12 percent slopes	17	IVe-1	28	1	52
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded	17	IVe-1	28	1	52
LoE	Loring silt loam, 12 to 20 percent slopes	17	VIe-1	29	1	52
LoE3	Loring silt loam, 12 to 20 percent slopes, severely eroded	17	VIe-1	29	1	52
MeA	Memphis silt loam, 0 to 2 percent slopes	18	I-1	24	1	52
MeB	Memphis silt loam, 2 to 5 percent slopes	18	IIe-1	25	1	52
MeC	Memphis silt loam, 5 to 8 percent slopes	18	IIIe-1	26	1	52
MeD	Memphis silt loam, 8 to 12 percent slopes	19	IVe-1	28	1	52
MfB3	Memphis silty clay loam, 2 to 5 percent slopes, severely eroded	19	IIIe-1	26	1	52
MfC3	Memphis silty clay loam, 5 to 8 percent slopes, severely eroded	19	IIIe-1	26	1	52
MfD3	Memphis silty clay loam, 8 to 12 percent slopes, severely eroded	19	IVe-1	28	1	52
MgD	Memphis-Gullied land complex, 5 to 12 percent slopes	19	IVe-1	28	1	52
MgE	Memphis-Gullied land complex, 12 to 20 percent slopes	19	VIe-1	29	1	52
RcF3	Ruston sandy clay loam, 12 to 30 percent slopes, severely eroded	20	VIIe-1	30	7	55
RdF	Ruston sandy loam, 12 to 30 percent slopes	20	VIIe-1	30	7	55
ReF	Ruston-Eustis complex, 12 to 30 percent slopes	20	VIIe-1	30	7	55
Sa	Sandy alluvial land	20	VIIs-1	30	5	55
Sw	Swamp	21	VIIw-1	30	6	55
Vb	Vicksburg fine sandy loam	21	I-2	24	4	54
Vc	Vicksburg fine sandy loam, local alluvium	21	I-2	24	4	54
Vk	Vicksburg silt loam	21	I-2	24	4	54
Vu	Vicksburg silt loam, local alluvium	21	I-2	24	4	54
Wa	Waverly fine sandy loam	22	IVw-1	29	6	55
Wv	Waverly silt loam	22	IVw-1	29	6	55

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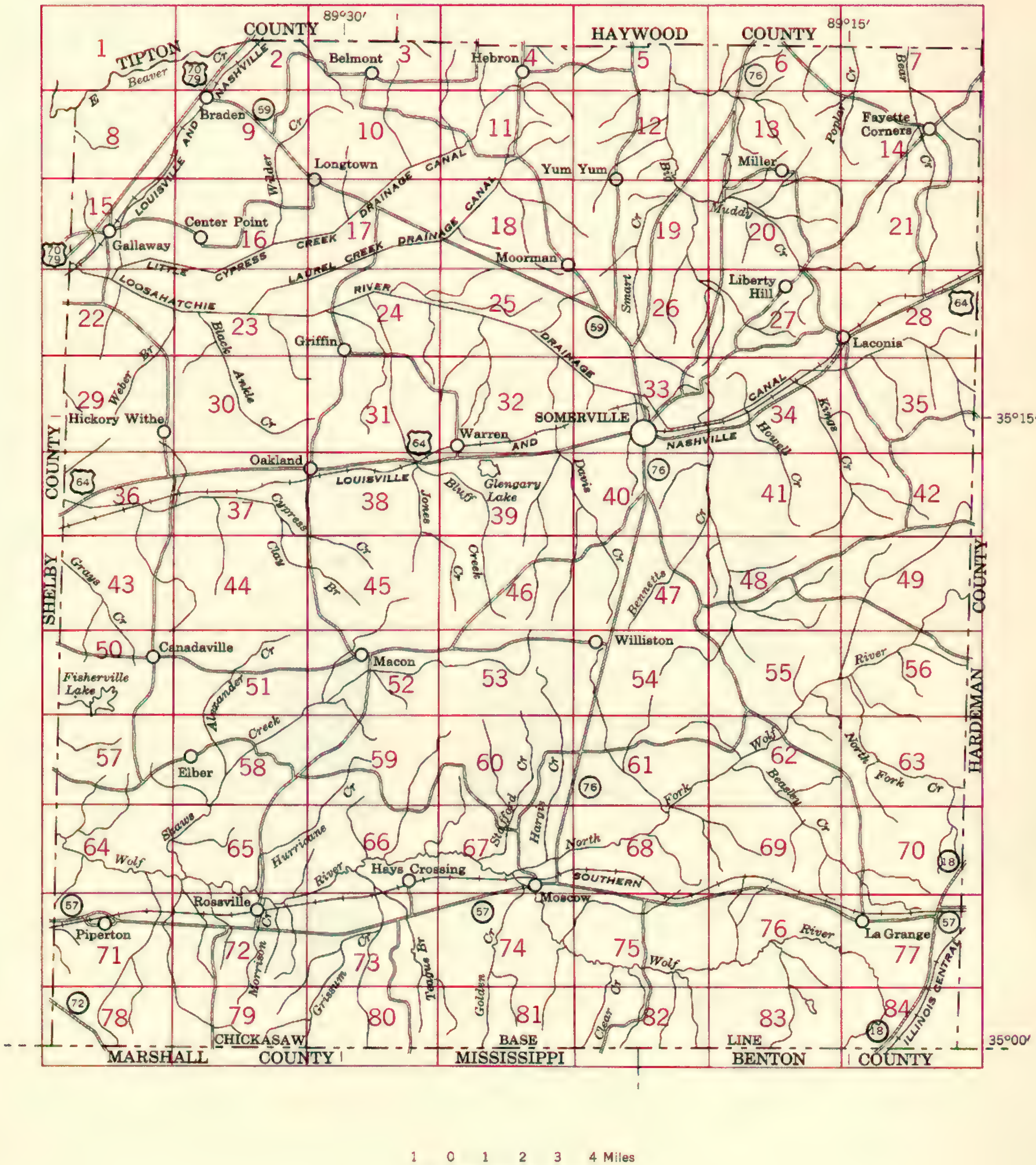
INDEX TO MAP SHEETS
FAYETTE COUNTY, TENNESSEE



CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Dual
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferries
- Ford
- Grade
- R. R. over
- R. R. under
- Tunnel

Buildings
- School
- Church
- Station

Mines and Quarries

Mine dump

Pits, gravel or other

Power lines

Pipe lines

Cemeteries

Dams

Sawmill

Cotton gin

Forest fire or lookout station

Mine tunnel, showing direction

BOUNDARIES

- National or state
- County
- Township, U. S.
- Section line, corner
- Reservation
- Land grant

DRAINAGE

Streams
- Perennial
- Intermittent, unclass
- Crossable with tillage implements
- Not crossable with tillage implements

Canals and ditches — CANAL, DITCH

Lakes and ponds
- Perennial
- Intermittent

Wells — flowing

Springs

Marsh

Wet spot

RELIEF

Escarpments
- Bedrock
- Other

Prominent peaks

Depressions — Large, Small
- Crossable with tillage implements
- Not crossable with tillage implements
- Contains water most of the time

SOIL SURVEY DATA

- Soil boundary and symbol — Dx
- Gravel
- Stones
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gullies

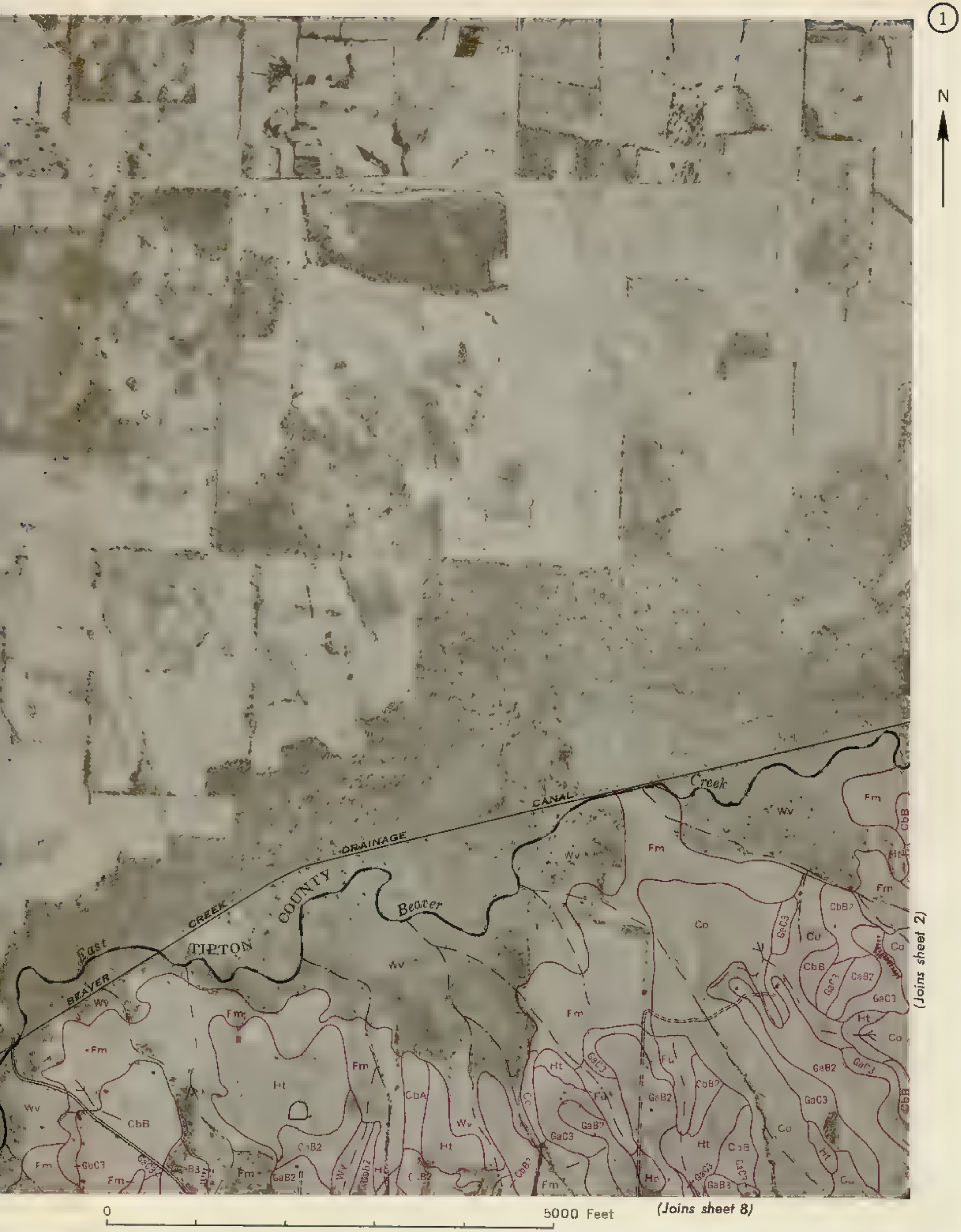
SOIL LEGEND

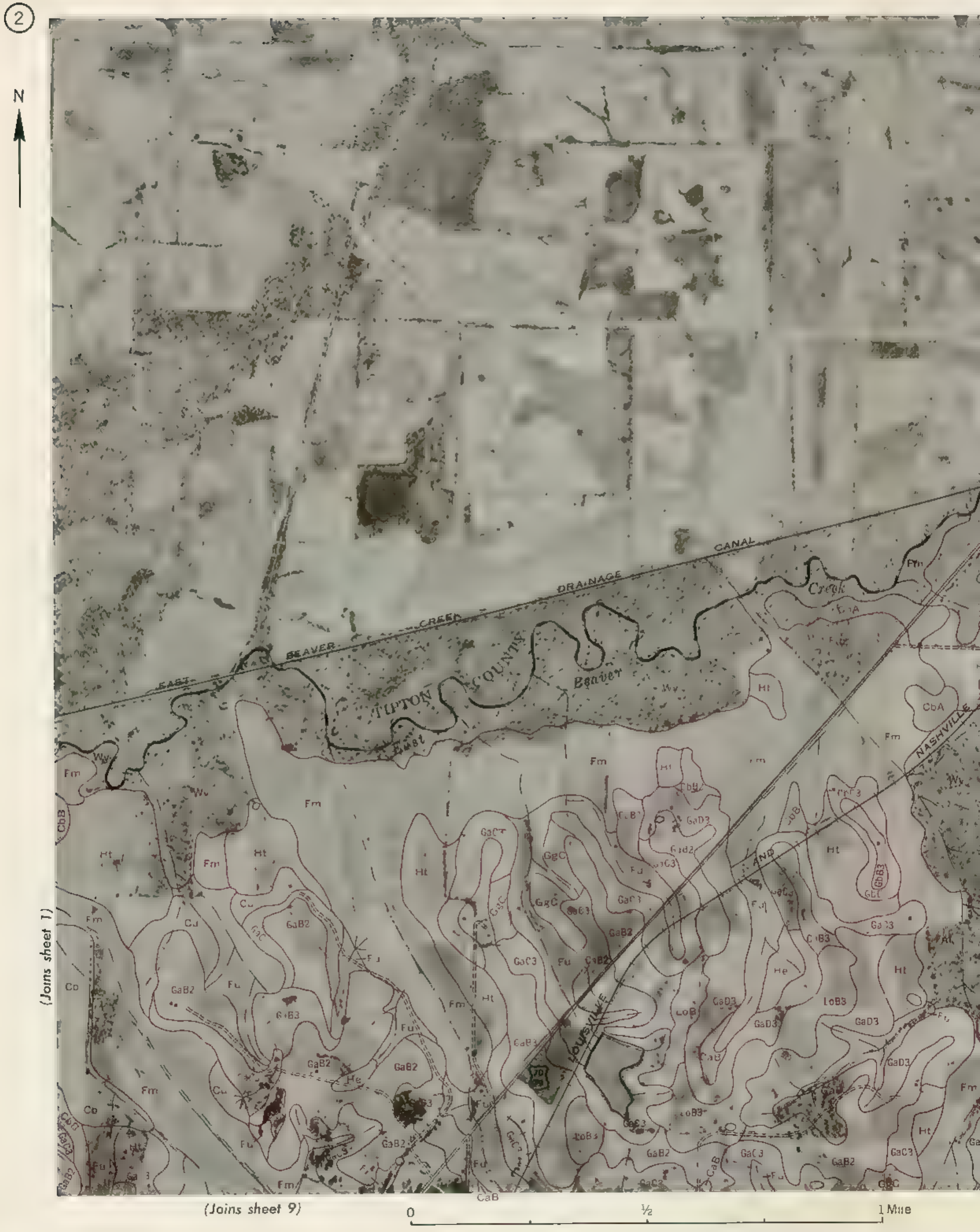
The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, D, E, or F, shows the slope. Most symbols without a slope letter are those of nearly level soils; a few designate soils of land types that have a considerable range of slope. A final number, 2 or 3, in the symbol, shows that the soil is eroded or severely eroded.

SYMBOL	NAME
CaA	Calloway silt loam, 0 to 2 percent slopes
CaB	Calloway silt loam, 2 to 5 percent slopes
CaB2	Calloway silt loam, 2 to 5 percent slopes, eroded
CbA	Calloway silt loam, terrace, 0 to 2 percent slopes
CbB	Calloway silt loam, terrace, 2 to 5 percent slopes
CbB2	Calloway silt loam, terrace, 2 to 5 percent slopes, eroded
Cl	Collins fine sandy loam
Cm	Collins fine sandy loam, local alluvium
Co	Collins silt loam
Cu	Collins silt loam, local alluvium
Fa	Falaya fine sandy loam
Ff	Falaya fine sandy loam, local alluvium
Fm	Falaya silt loam
Fu	Falaya silt loam, local alluvium
GaA	Grenada silt loam, 0 to 2 percent slopes
GaB	Grenada silt loam, 2 to 5 percent slopes
GaB2	Grenada silt loam, 2 to 5 percent slopes, eroded
GaB3	Grenada silt loam, 2 to 5 percent slopes, severely eroded
GaC	Grenada silt loam, 5 to 8 percent slopes
GaC2	Grenada silt loam, 5 to 8 percent slopes, eroded
GaC3	Grenada silt loam, 5 to 8 percent slopes, severely eroded
GaD	Grenada silt loam, 8 to 12 percent slopes
GaD3	Grenada silt loam, 8 to 12 percent slopes, severely eroded
GbA	Grenada silt loam, terrace, 0 to 2 percent slopes
GbB	Grenada silt loam, terrace, 2 to 5 percent slopes
GbB2	Grenada silt loam, terrace, 2 to 5 percent slopes, eroded
GbB3	Grenada silt loam, terrace, 2 to 5 percent slopes, severely eroded
GbC2	Grenada silt loam, terrace, 5 to 8 percent slopes, eroded
GbC3	Grenada silt loam, terrace, 5 to 8 percent slopes, severely eroded
GgC	Grenada-Gullied land complex, 5 to 8 percent slopes
GgD	Grenada-Gullied land complex, 8 to 12 percent slopes
Gn	Gullied land, sandy
Gs	Gullied land, silty
He	Henry silt loam
Ho	Henry silt loam, overwash
Ht	Henry silt loam, terrace
LbB	Lexington silt loam, 2 to 5 percent slopes
LbC	Lexington silt loam, 5 to 8 percent slopes
LbD	Lexington silt loam, 8 to 12 percent slopes
LcB3	Lexington silty clay loam, 2 to 5 percent slopes, severely eroded
LcC3	Lexington silty clay loam, 5 to 8 percent slopes, severely eroded
LcD3	Lexington silty clay loam, 8 to 12 percent slopes, severely eroded
LeD	Lexington-Ruston complex, 8 to 12 percent slopes
LeD3	Lexington-Ruston complex, 8 to 12 percent slopes, severely eroded
LeF	Lexington-Ruston complex, 12 to 30 percent slopes
LeF3	Lexington-Ruston complex, 12 to 30 percent slopes, severely eroded
LfD	Lexington-Ruston-Gullied land complex, 8 to 12 percent slopes
LfF	Lexington-Ruston-Gullied land complex, 12 to 30 percent slopes
LgD	Loring-Gullied land complex, 5 to 12 percent slopes
LgE	Loring-Gullied land complex, 12 to 20 percent slopes
LoA	Loring silt loam, 0 to 2 percent slopes
LoB	Loring silt loam, 2 to 5 percent slopes
LoB3	Loring silt loam, 2 to 5 percent slopes, severely eroded
LoC	Loring silt loam, 5 to 8 percent slopes
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded
LoD	Loring silt loam, 8 to 12 percent slopes
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded
LoE	Loring silt loam, 12 to 20 percent slopes
LoE3	Loring silt loam, 12 to 20 percent slopes, severely eroded
MeA	Memphis silt loam, 0 to 2 percent slopes
MeB	Memphis silt loam, 2 to 5 percent slopes
MeC	Memphis silt loam, 5 to 8 percent slopes
MeD	Memphis silt loam, 8 to 12 percent slopes
MfB3	Memphis silty clay loam, 2 to 5 percent slopes, severely eroded
MfC3	Memphis silty clay loam, 5 to 8 percent slopes, severely eroded
MfD3	Memphis silty clay loam, 8 to 12 percent slopes, severely eroded
MgD	Memphis-Gullied land complex, 5 to 12 percent slopes
MgE	Memphis-Gullied land complex, 12 to 20 percent slopes
RcF3	Ruston sandy clay loam, 12 to 30 percent slopes, severely eroded
RdF	Ruston sandy loam, 12 to 30 percent slopes
ReF	Ruston-Eustis complex, 12 to 30 percent slopes
Sa	Sandy alluvial land
Sw	Swamp
Vb	Vicksburg fine sandy loam
Vc	Vicksburg fine sandy loam, local alluvium
Vk	Vicksburg silt loam
Vu	Vicksburg silt loam, local alluvium
Wa	Waverly fine sandy loam
Wv	Waverly silt loam

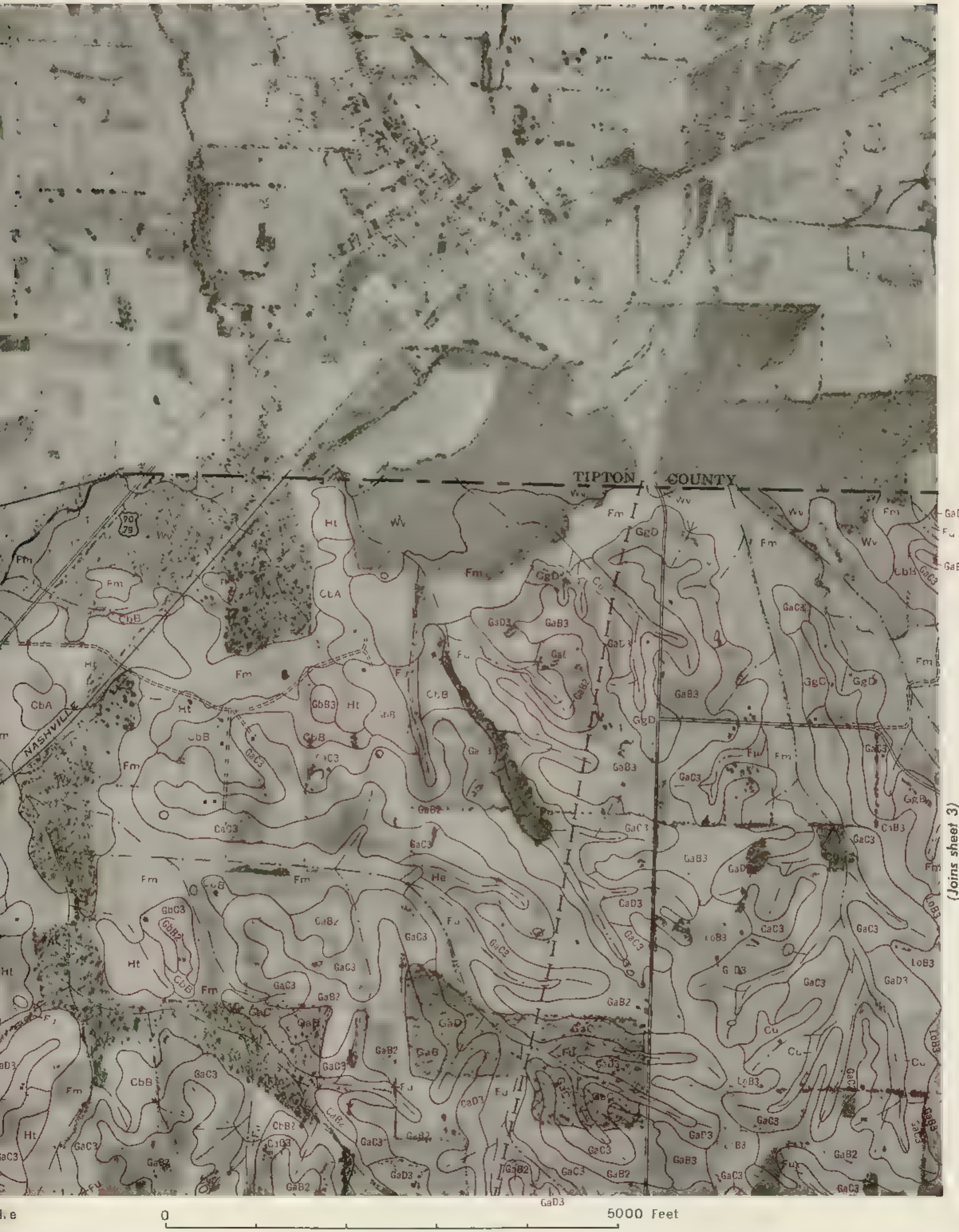
Soil map constructed 1962 by Cartographic Division, Soil Conservation Service, USDA from 1956 aerial photographs. Controlled mosaic based on Tennessee plane coordinate system, west zone. Lambert conformal conic projection, 1927 North American datum.


EAST
Wv
Fm
Fm


1
N
East Beaver Creek
BEAVER CREEK DRAINAGE CANAL
TIPTON COUNTY
Beaver Creek
Wv
Fm
Co
Ht
CbB
CbA
GaC3
GaB2
GaB3
0
5000 Feet
(Joins sheet 8)
(Joins sheet 2)



2
N
EAST BEAVER CREEK DRAINAGE CANAL
TIPTON COUNTY
East Beaver Creek
NASHVILLE
LOUISVILLE AND
70
(Joins sheet 1)
(Joins sheet 9)
0
½
1 Mile

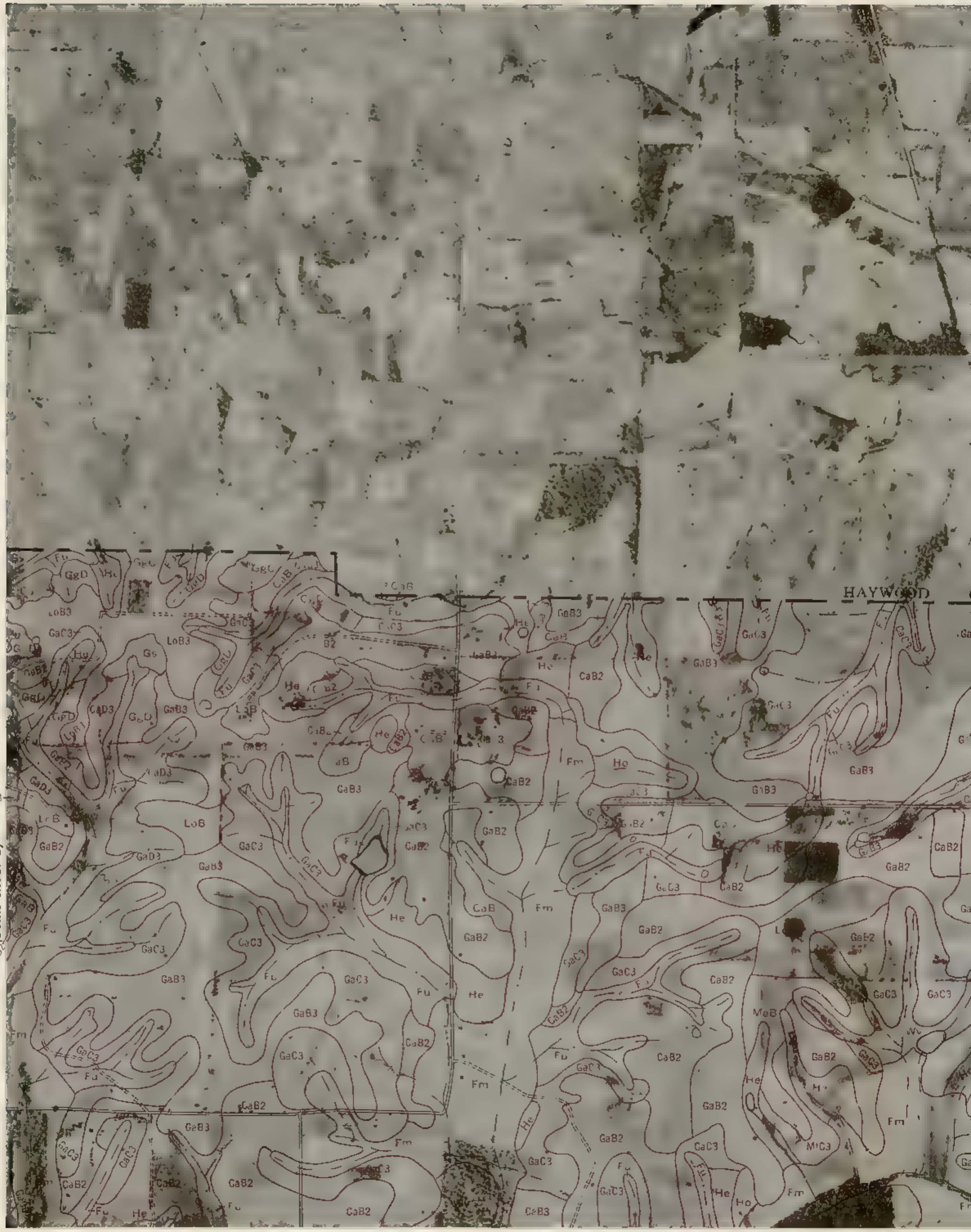

TIPTON COUNTY
NASHVILLE
70
79
(Joins sheet 3)
Ht
Wv
Fm
CbA
CbB
GgD
GaB3
GaC3
GaD3
GaB2
GbB3
He
Cu
LoB3
0
5000 Feet


(Joins sheet 2)
TIPTO
Belmont
0
½
1 Mile


N
TIPTON COUNTY
HAYWOOD COUNTY
(Joins sheet 4)
(Joins sheet 10)
0
5000 Feet
CaA
GaB2
GaC3
GaB3
GaD3
GgD
Fu
He
Ho
Gs
LoB3
MeB
CaB2
CaB
Fm
GgC

4

N



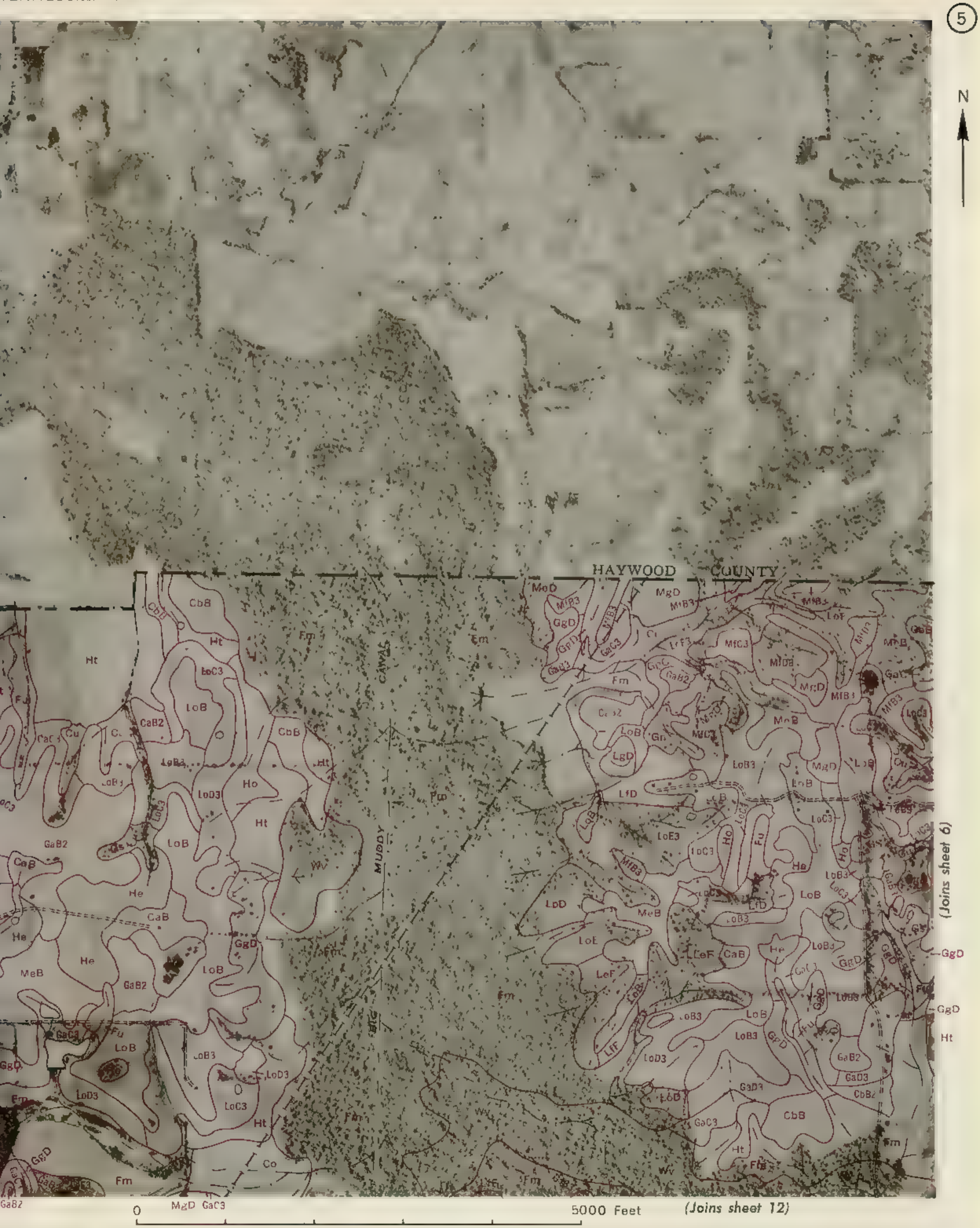
(Joins sheet 3)

(Joins sheet 11)

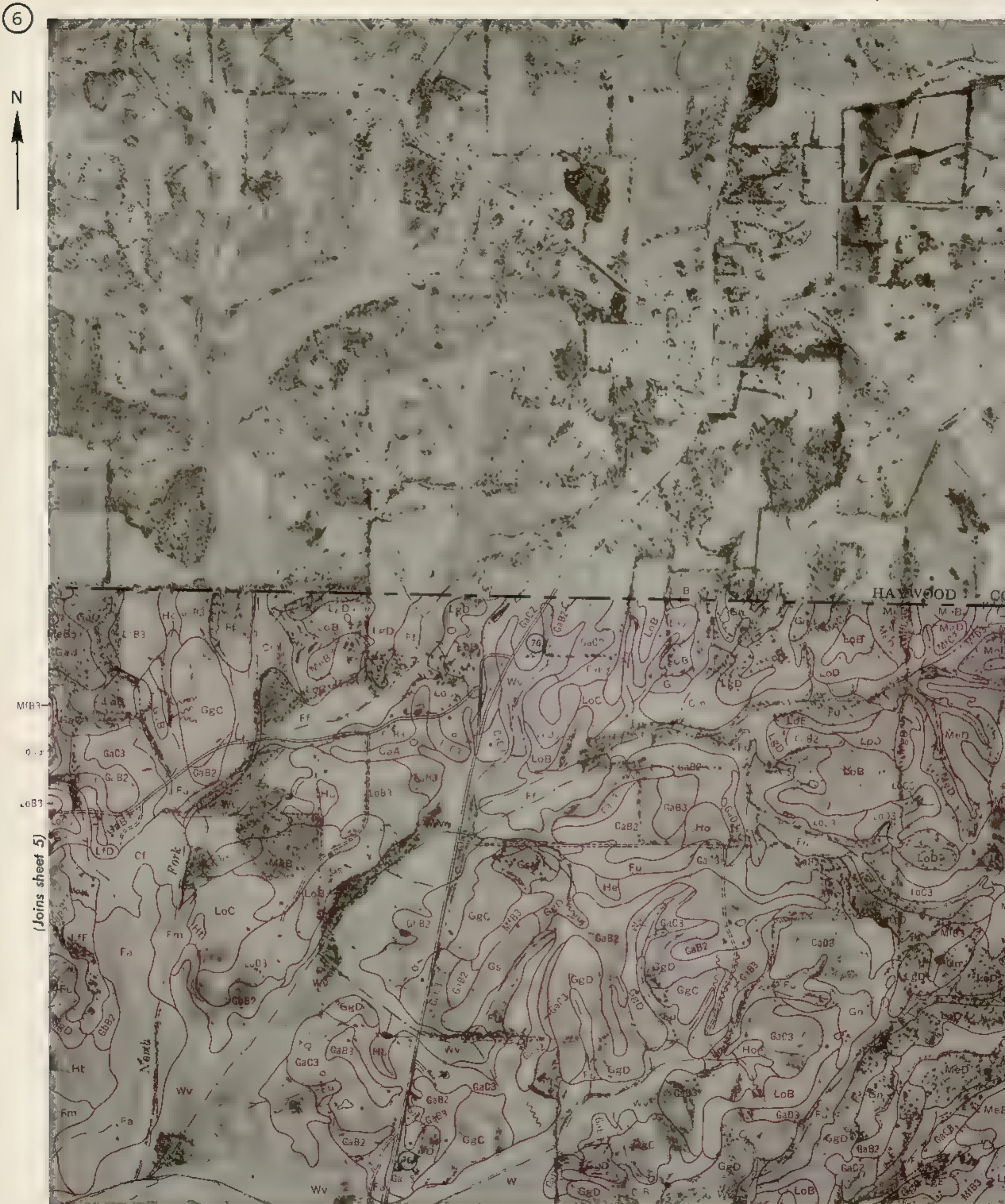
0 ½ 1 Mile

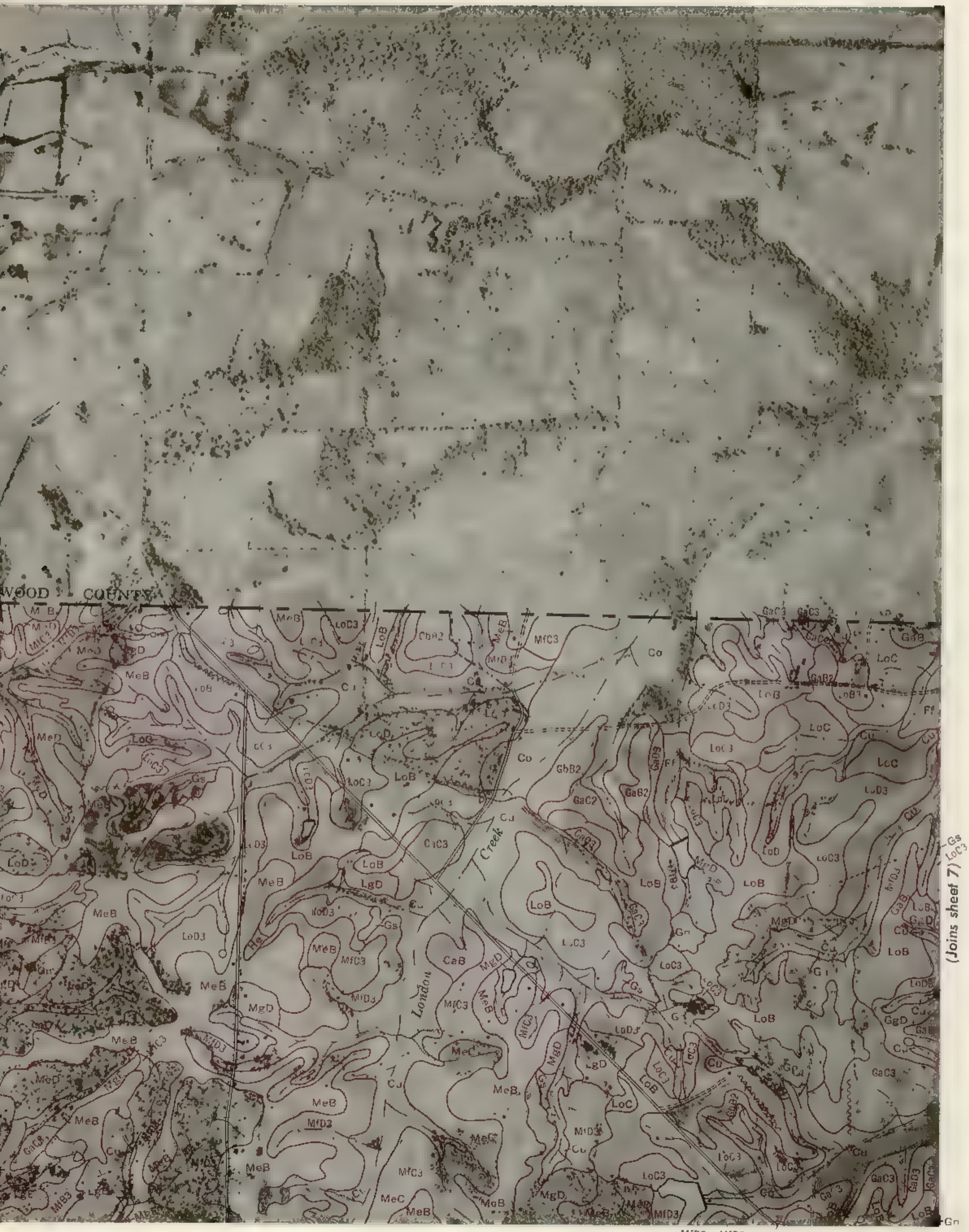

HAYWOOD COUNTY
Hebron
Bethlehem Church
(Joins sheet 5)
MgE
MgD
Mile
0
5000 Feet


HAYWOOD COUNTY
Reeves School
(Joins sheet 4)
0
½
1 Mile

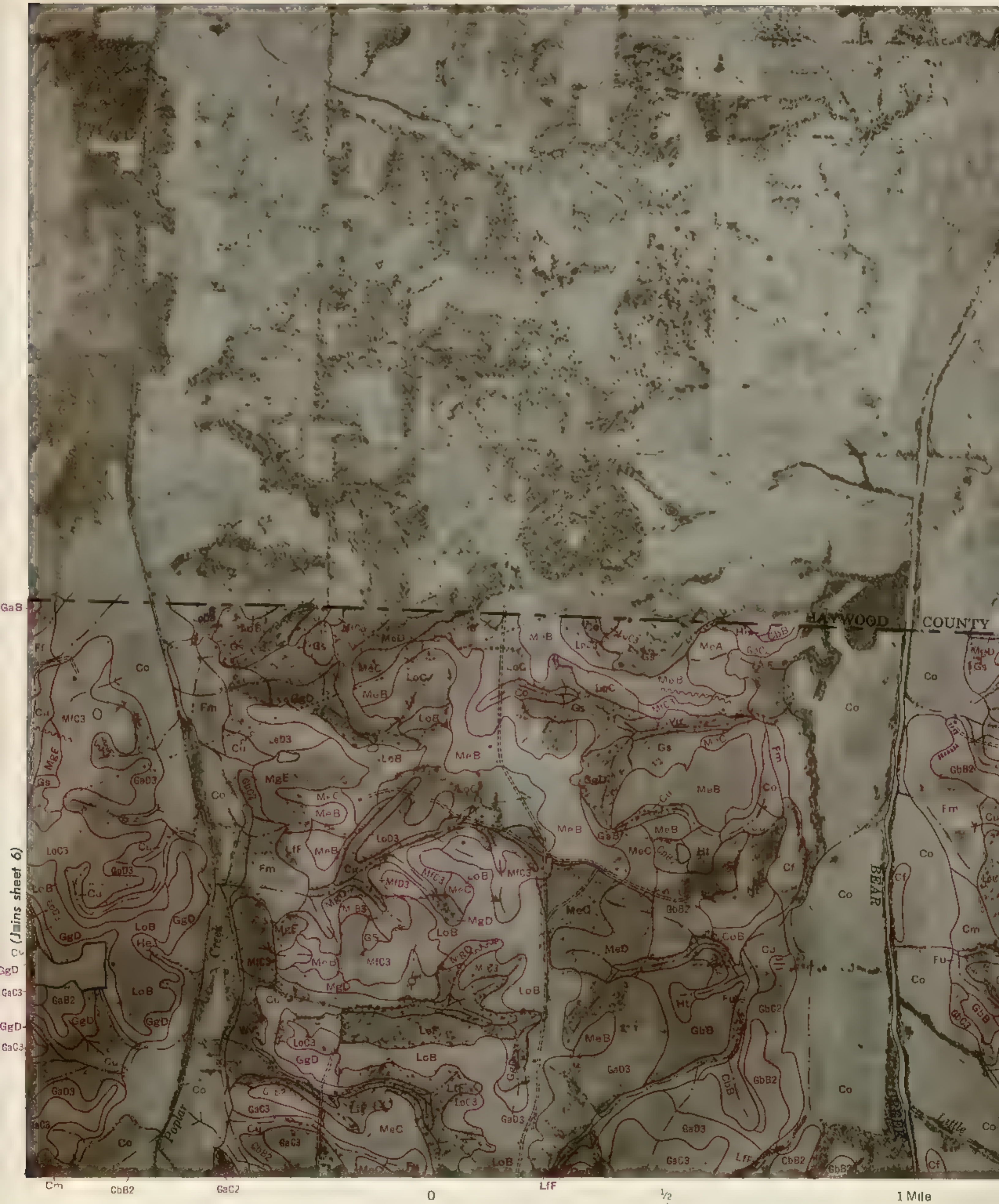

5
N
HAYWOOD COUNTY
MUDDY
CANAL
(Joins sheet 6)
0
5000 Feet
(Joins sheet 12)

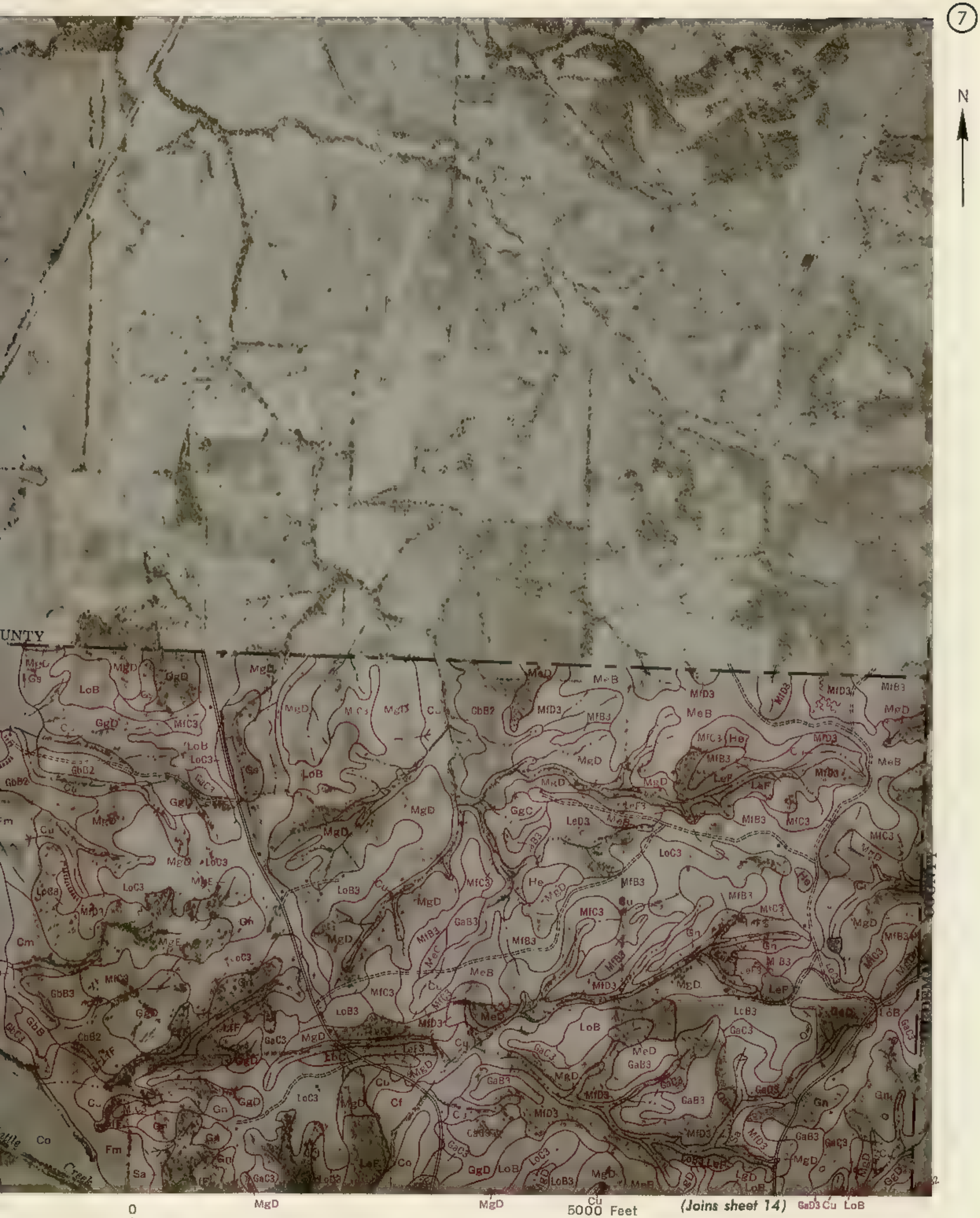
6


N
HAYWOOD CO
(Joins sheet 5)
North Fork
LoC
GgC
LoB
GaB2
GaC3
GgD
Wv
Fa
Cf
(Joins sheet 13)
0
½
1 Mile


WOOD COUNTY
London Creek
(Joins sheet 7)
MeB
LoB
LoC3
LoD3
MfC3
MfD3
GaC3
Cu

0 5000 Feet

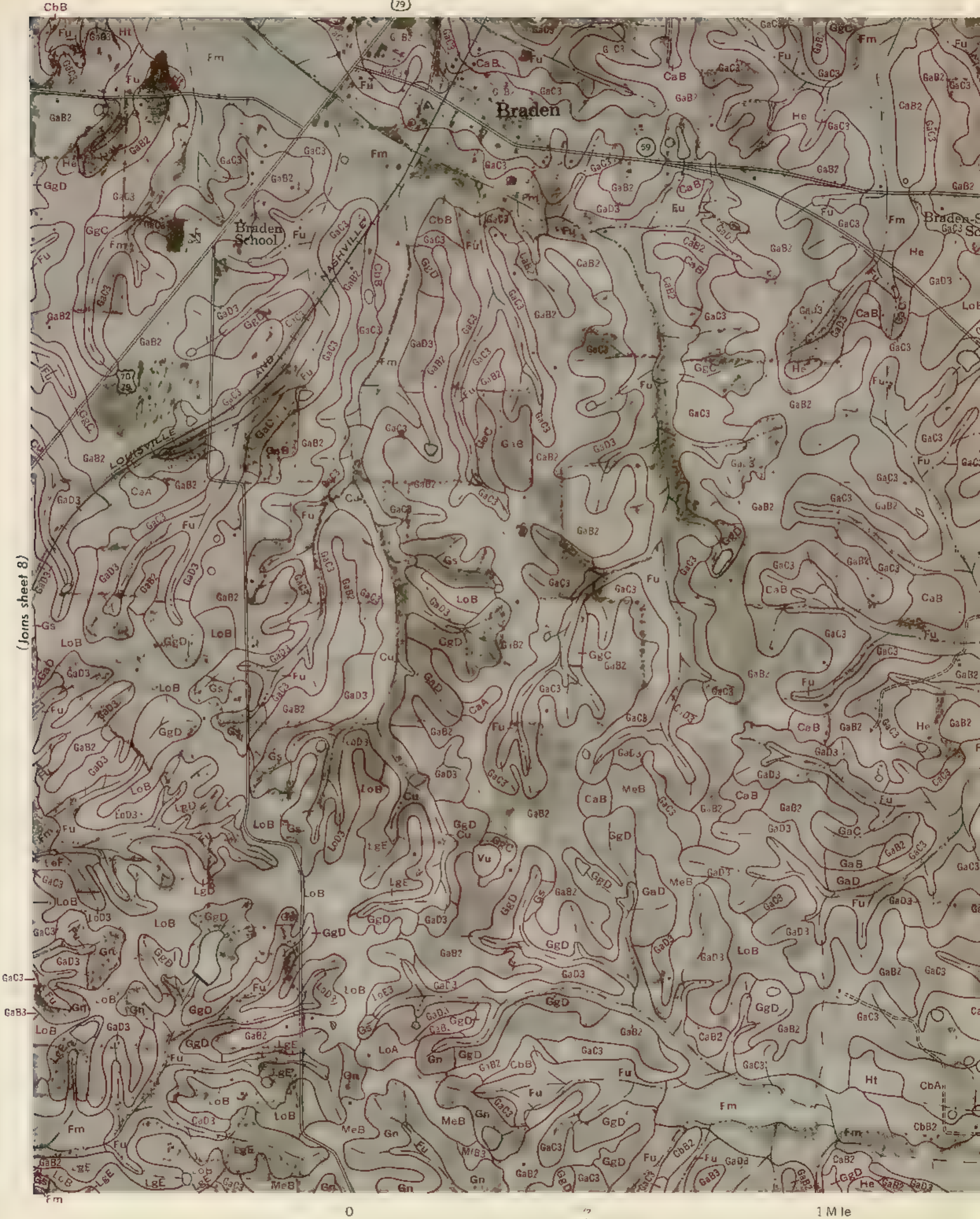

HAYWOOD COUNTY
(Jains sheet 6)
Poplar
Creek
BEAR
Little
0
1/2
1 Mile


7
N
UNTY
LoB
MgD
GgD
MfC3
LoC3
GbB2
MeB
MfD3
MfB3
MeD
LeF
LeD3
GgC
He
LoB3
GaB3
MeC
Cu
Gn
Cm
Fm
Sa
Co
Cf
GaC3
LoC3
Creek
0
MgD
5000 Feet
(Joins sheet 14)
GaD3 Cu LoB

(8)


N
SHELBY COUNTY
TIPTON
CANAL
Fm
Ht
CbA
CbB
GaC
GaB2
GaC3
GaB3
GaD3
Fu
Cu
LoB3
LoB
LgE
Gs
GaD
CaD3
0
½
1 Mile


(Joins sheet 1)
(Joins Sheet 9)
(Joins Sheet 15)
POPLAR SPRINGS CEMETERY
Griffin School
Poplar Springs Church
GRAVEL PIT
LOUISVILLE AND NASHVILLE
0
5000 Feet


Braden
Braden School
LOUISVILLE AND NASHVILLE
Braden-S
(Joins sheet 8)
70
79
59
CbB
GaC3—
GaB3—
Fm
0
1 Mile


(Joins sheet 2)
(Joins sheet 10)
(Joins sheet 16)
N
Braden-Sinai School
Wilder Creek
59
0
5000 Feet

10

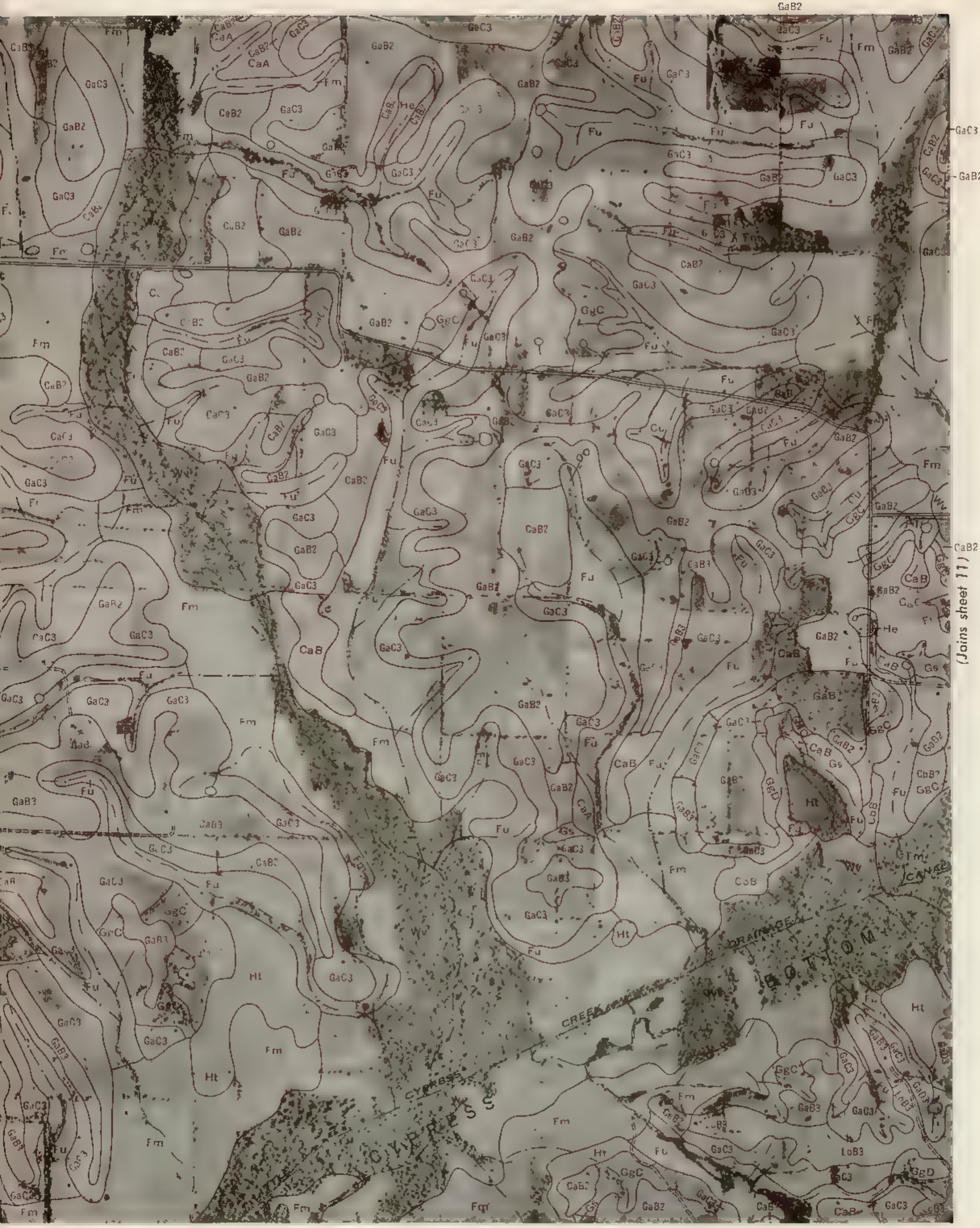
(Joins sheet 3)

N

(Joins sheet 9)

(Joins sheet 17)

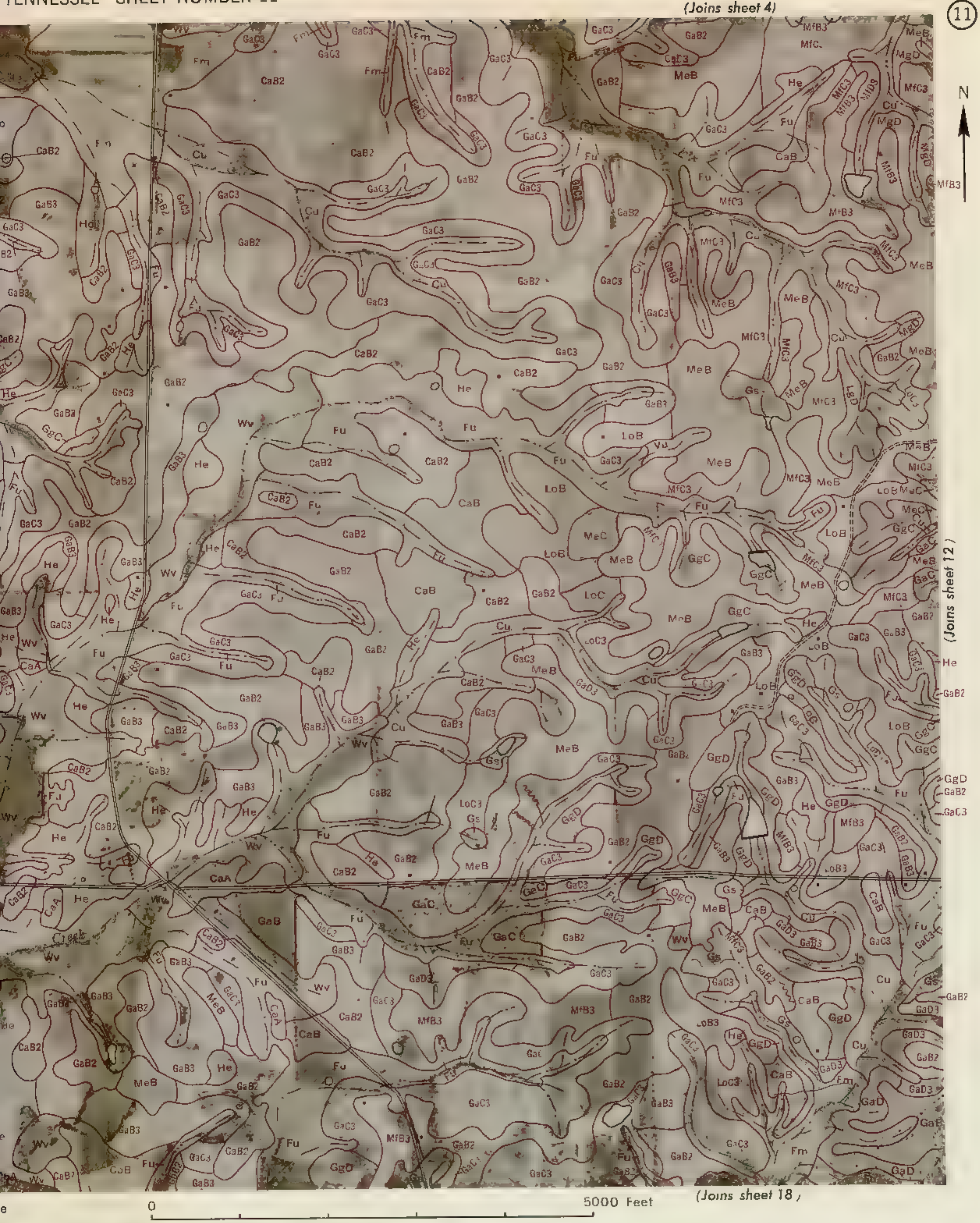
0 ½ 1 Mile



Mile 0 5000 Feet

(Joins sheet 10)

0 ½ 1 Mile


(Joins sheet 4)
11
N
(Joins sheet 12)
(Joins sheet 18)
0
5000 Feet

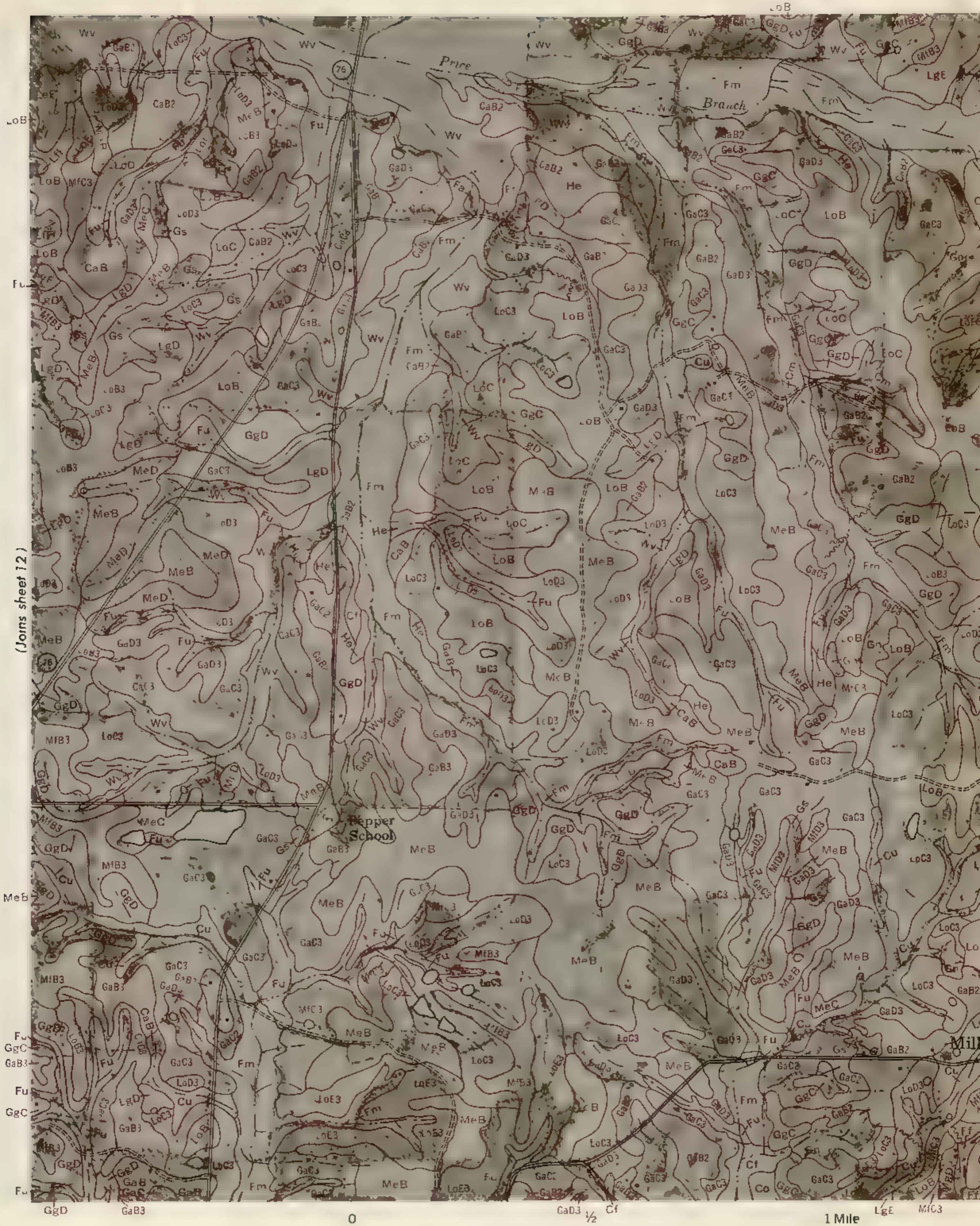
(Joins sheet 5)

(Joins sheet 11)

(Joins sheet 19)

0 ½ 1 Mile

ile 0 5000 Feet


Price
Branch
76
Pepper
School
Mil
(Joins sheet 12)
0
½
1 Mile


(Joins sheet 6)
(Joins sheet 14)
(Joins sheet 20)
N
Miller School
Miller
Price
Poplar
0
5000 Feet

(Joins sheet 7)

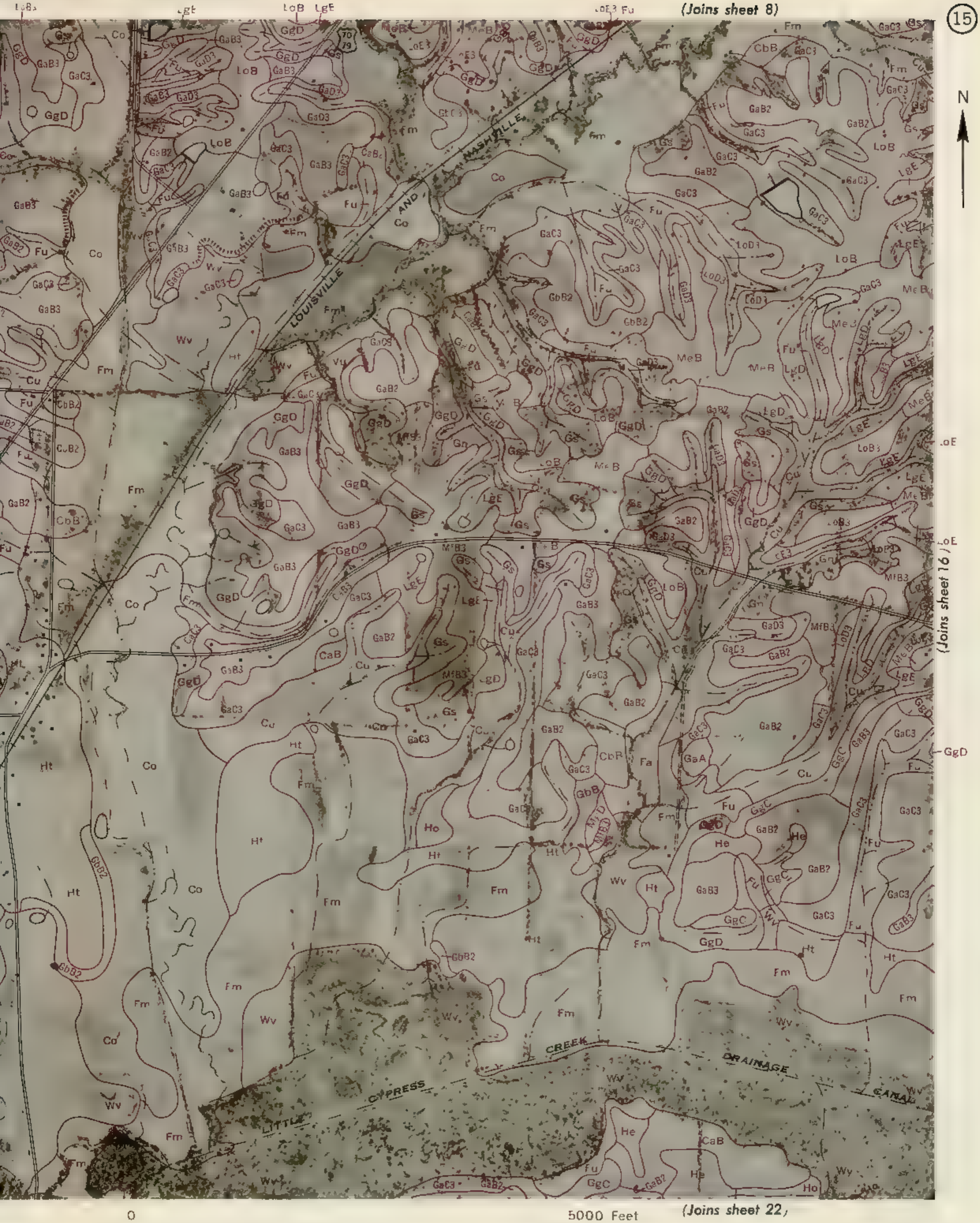
(Joins sheet 13)

(Joins sheet 21)

0 ½ 1 Mile

NNESSEE - SHEET NUMBER 14


SHELBY COUNTY
Gallaway
NASHVILLE
LOUISVILLE AND
70
79
LgE
LoB3
LoB
Gs
MeB
Cu
GgD
LoE3
GaB3
GaC3
GaB2
Fu
MfB3
Ff
GaD3
CbB
Ht
Fm
Co
GaD
LfF
Cm
0
½
1 Mile


(Joins sheet 8)
15
N
LOUISVILLE AND NASHVILLE
LITTLE CYPRESS CREEK DRAINAGE CANAL
(Joins sheet 16)
(Joins sheet 22)
0
5000 Feet

16

(Joins sheet 9)

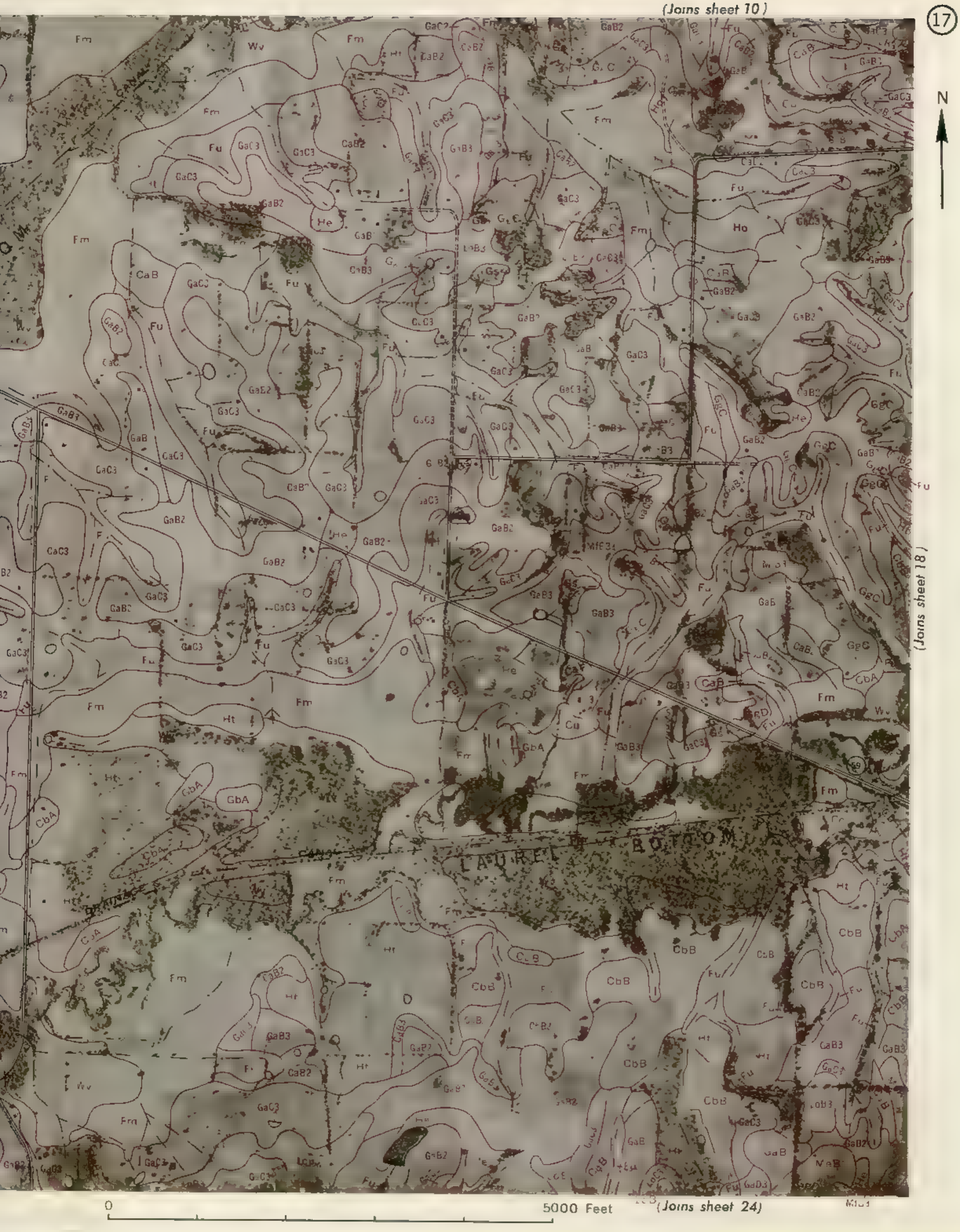
(Joins sheet 15)

(Joins sheet 23)

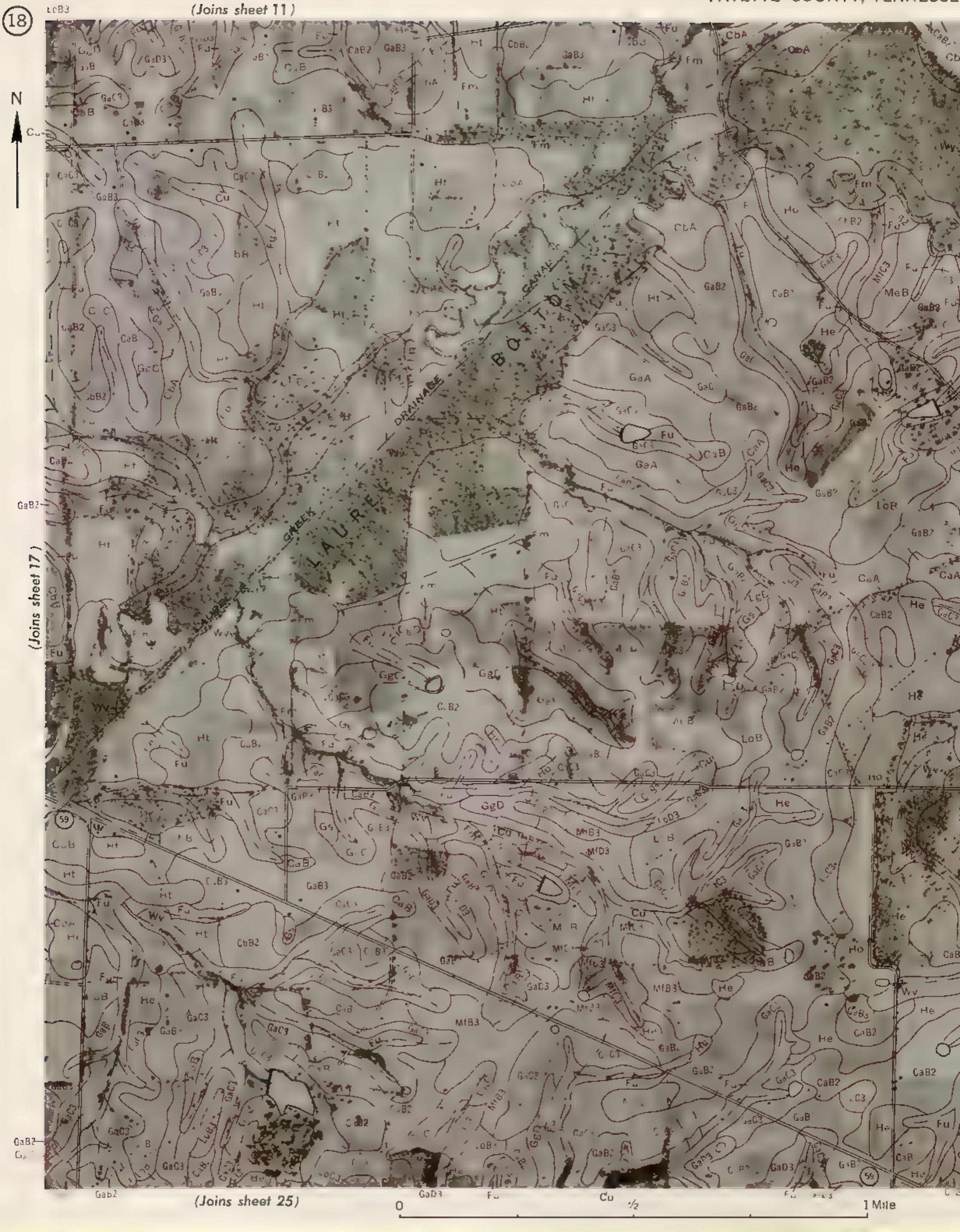
0 ½ 1 Mile

Mile
0
5000 Feet


Longtown
Longtown School
LITTLE
CYPRESS
CREEK
CYPRESS
DRAINAGE
BOTTOM
(Joins sheet 16)
59
0
½
1 Mile


(Joins sheet 10)
17
N
(Joins sheet 18)
LAUREL BOTTOM
CANAL
DRAINAGE
0
5000 Feet
(Joins sheet 24)

(18)


(Joins sheet 11)
(Joins sheet 17)
(Joins sheet 25)
N
LAUREL BOTTOM
DRAINAGE CANAL
LAUREL CREEK
59
0
1/2
1 Mile


Oak Grove Church
Moorman
(Joins sheet 19)
5000 Feet

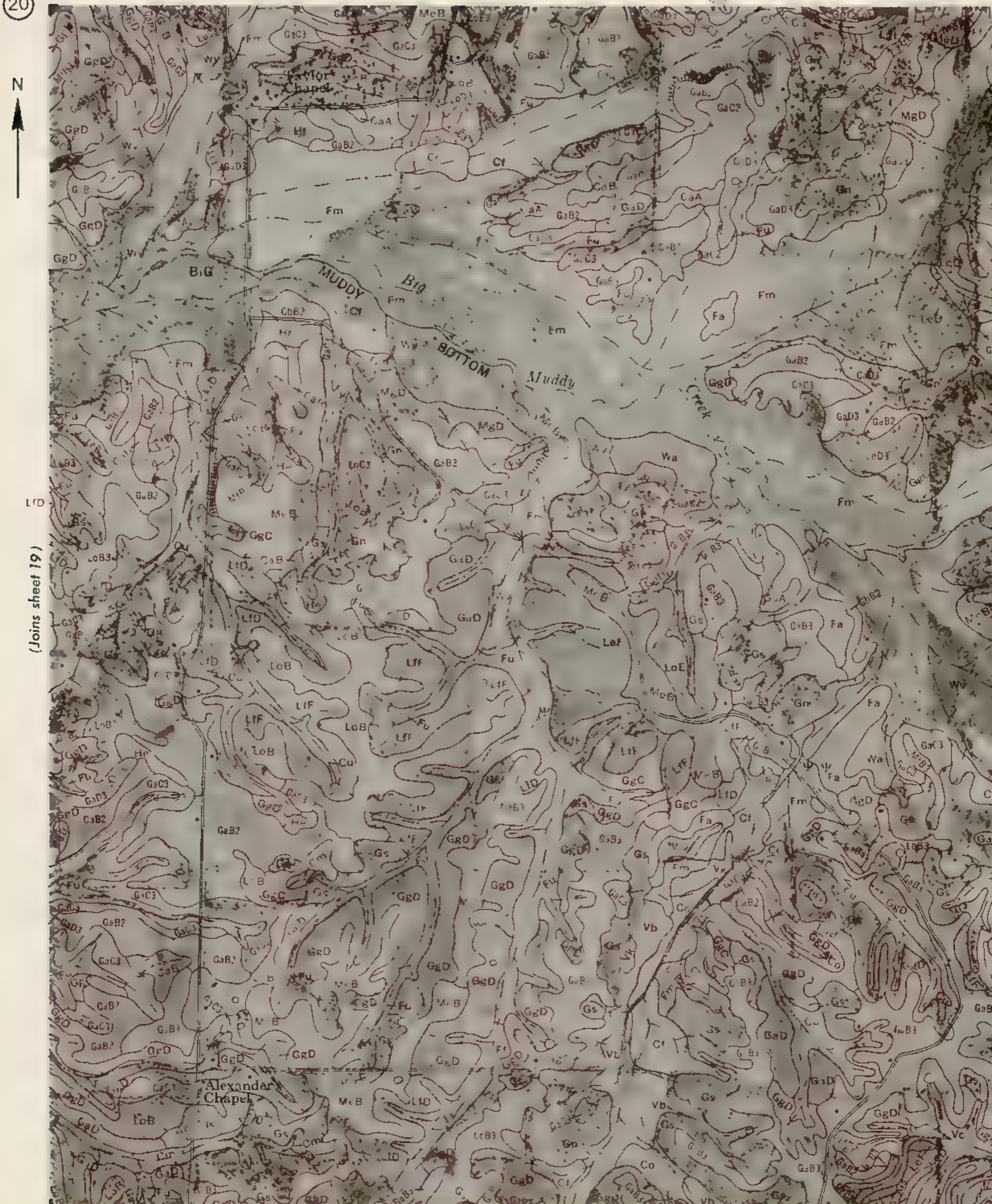

Pleasant Grove Church
Pleasant Grove School
Creek
(Joins sheet 18)
0
½
1 Mile


(Joins sheet 12)
19
N
BIG MUDDY BOTTOM
Big Muddy Creek
Creek
Shady Grove Church
(Joins sheet 20)
(Joins sheet 26)
0
5000 Feet

20

(Joins sheet 13)

(Joins sheet 19)



(Joins sheet 27)

0 ½ 1 Mile

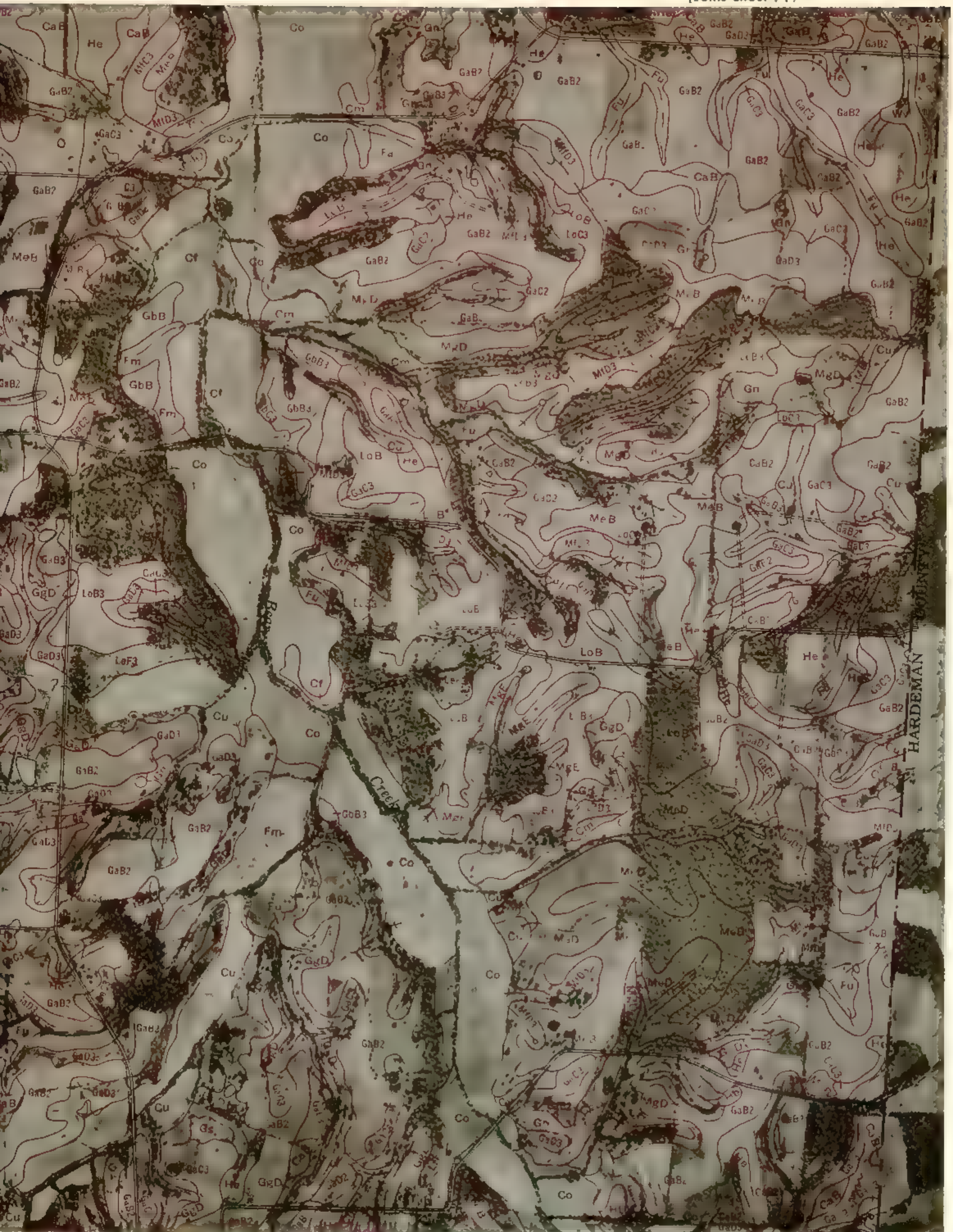
(Joins sheet 21)


(Joins sheet 20)
0
½
1 Mile

(Joins sheet 14)

21

N

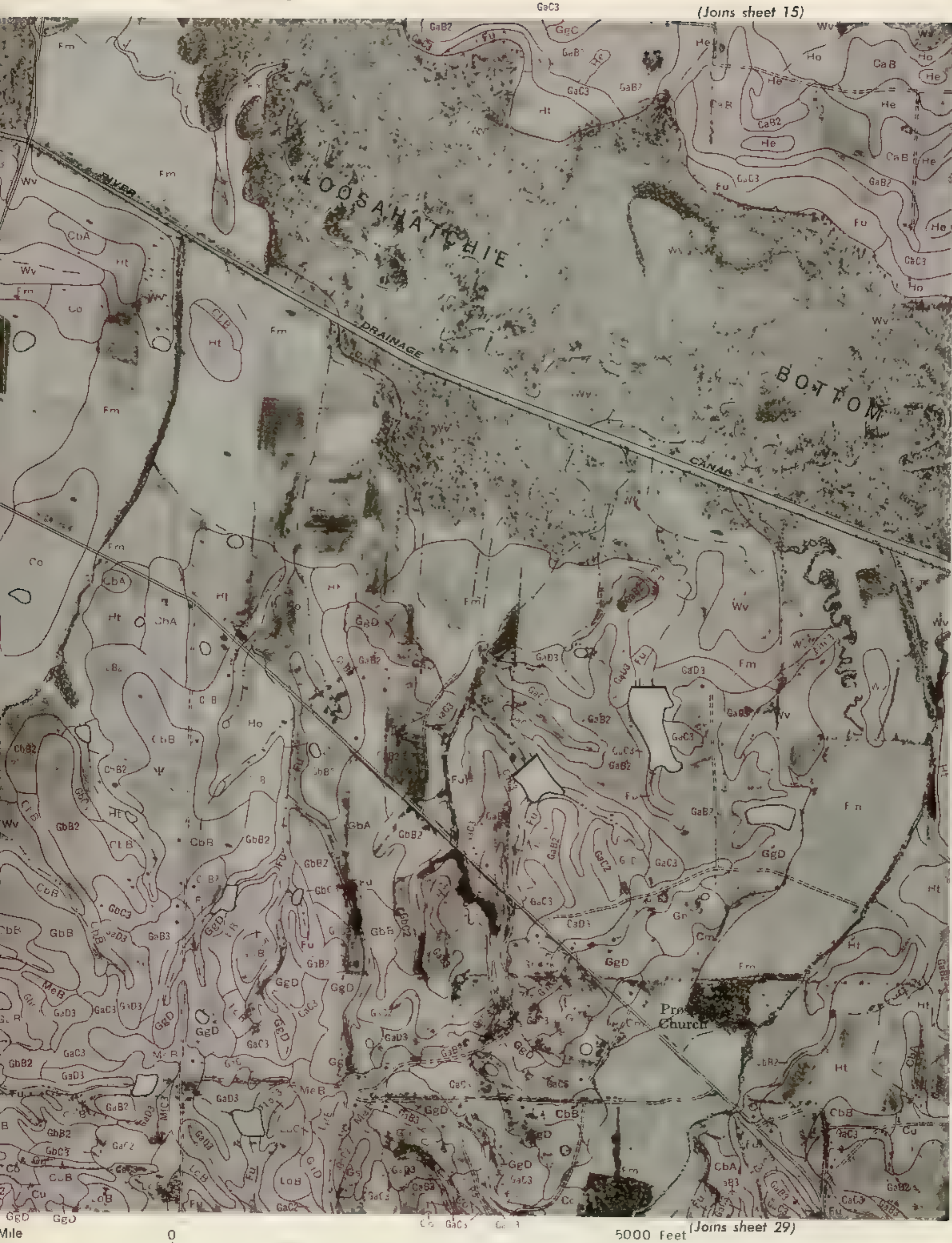


le 1:15 840 0 5000 Feet

(Joins sheet 28)

(22)


N
LOOSAHATCHIE
SHELBY COUNTY
Fm
Ht
Wv
CbB
CbA
Co
Fu
GbB2
GbC3
GaB3
GaC3
GgD
LgE
MeB
GaD3
GbB
Gn
0
½
1 Mile


(Joins sheet 15)
LOOSAHATCHIE
BOTTOM
RIVER
DRAINAGE
CANAL
(Joins sheet 23)
Church
(Joins sheet 29)
Mile
0
5000 Feet

(Joins sheet 22)

(Joins sheet 16)

23

(Joins sheet 24)

0 5000 Feet

(Joins sheet 30)

24

(Joins sheet 17)

N

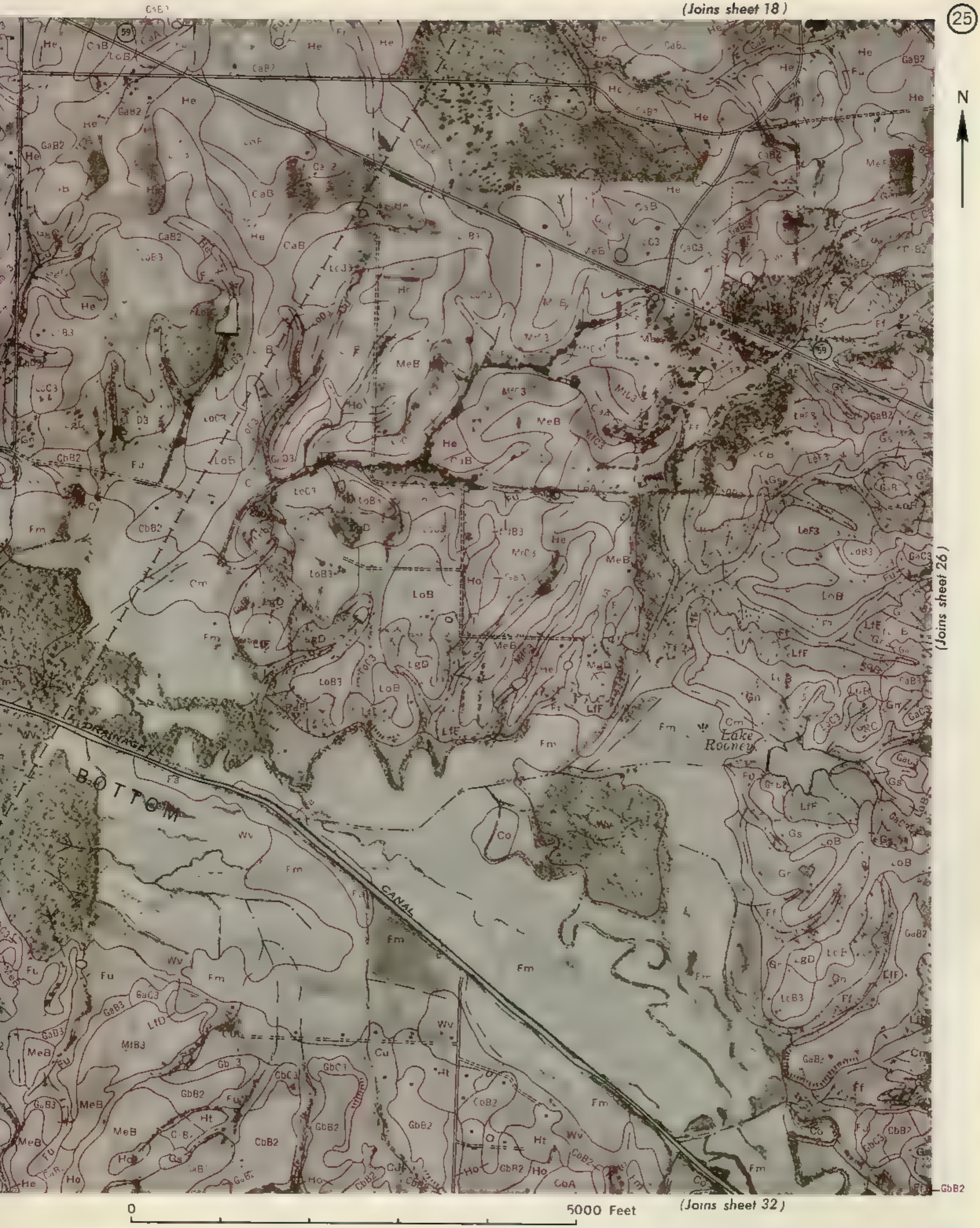
(Joins sheet 23)

(Joins sheet 31)

0 ½ 1 Mile

ile 0 5000 Feet


(Joins sheet 24)
LOOSAHATCHIE RIVER
LOOSAHATCHIE
0
1/2
1 Mile


(Joins sheet 18)
25
N
(Joins sheet 26)
DRAINAGE
BOTTOM
CANAL
Lake Rooney
59
(Joins sheet 32)
0
5000 Feet

(26)

(Joins sheet 19)

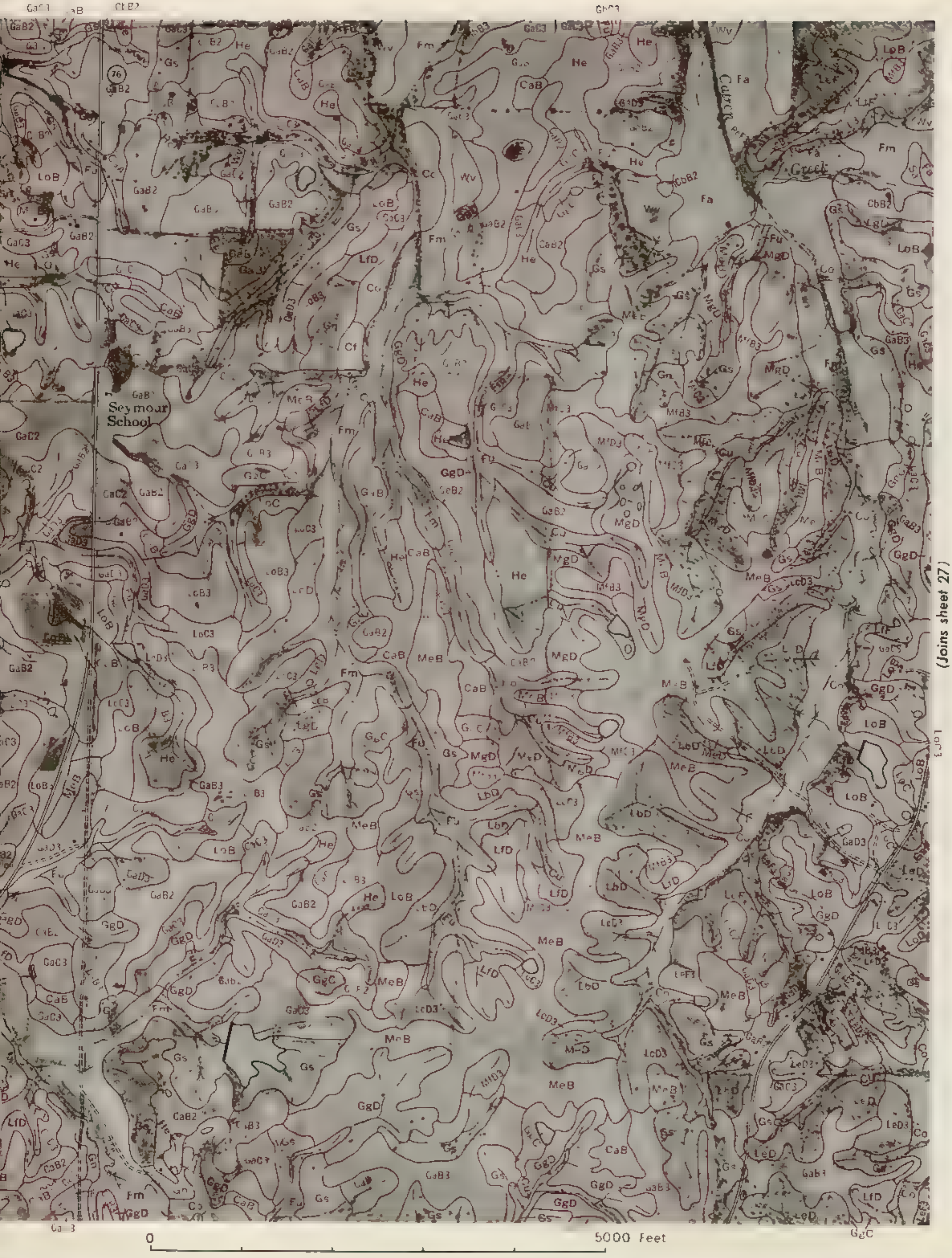
N

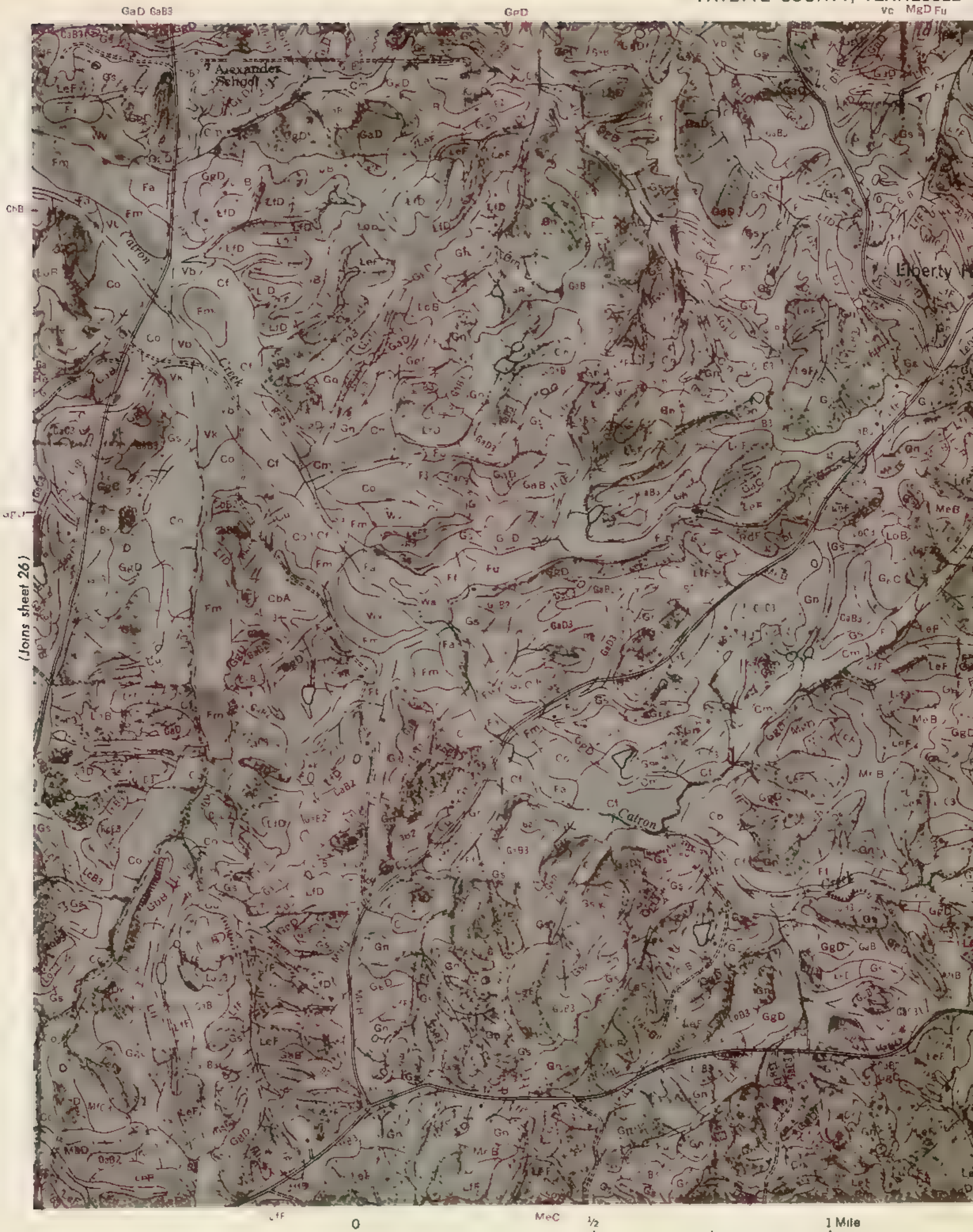
(Joins sheet 25)

(Joins sheet 33)

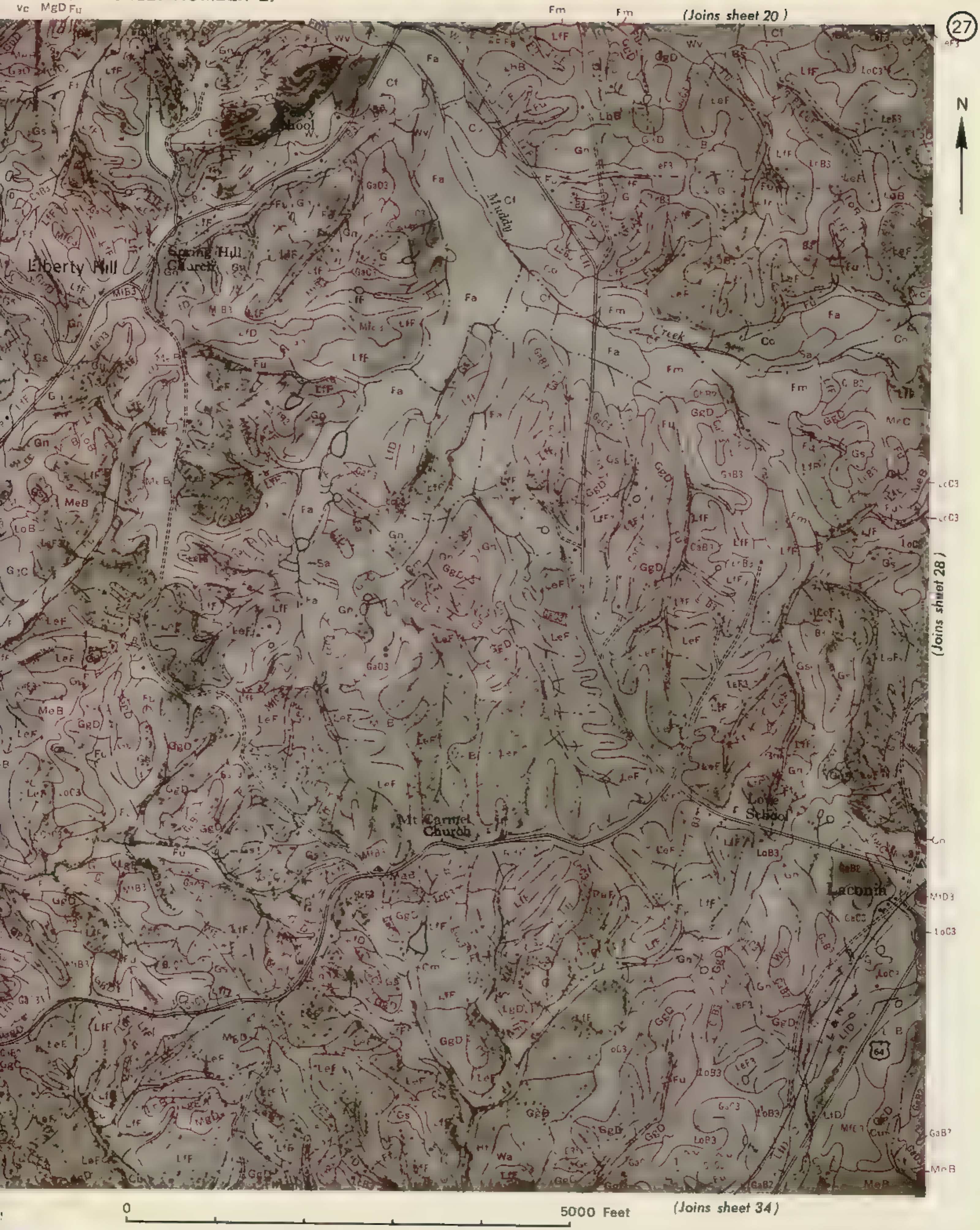
0 ½ 1 Mile

ENNESSEE - SHEET NUMBER 26





Alexander School
Catron
Creek
Catron
Liberty
(Joins sheet 26)
0
1/2
1 Mile


27
(Joins sheet 20)
N
Liberty Hill
Spring Hill Church
Muddy
Creek
Mt Carmel Church
Love School
Laconia
64
(Joins sheet 28)
0
5000 Feet
(Joins sheet 34)

28

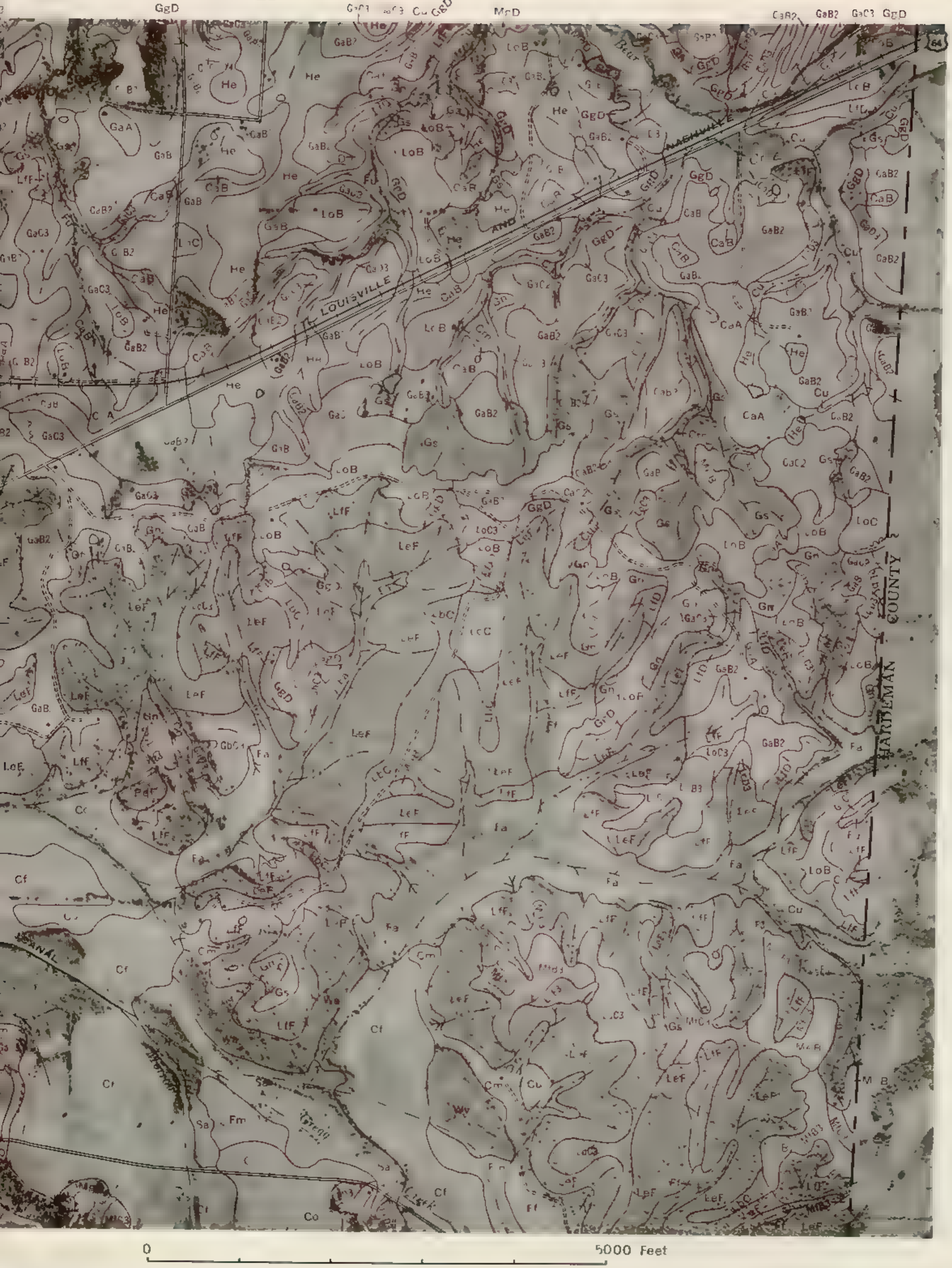
(Joins sheet 21)

N

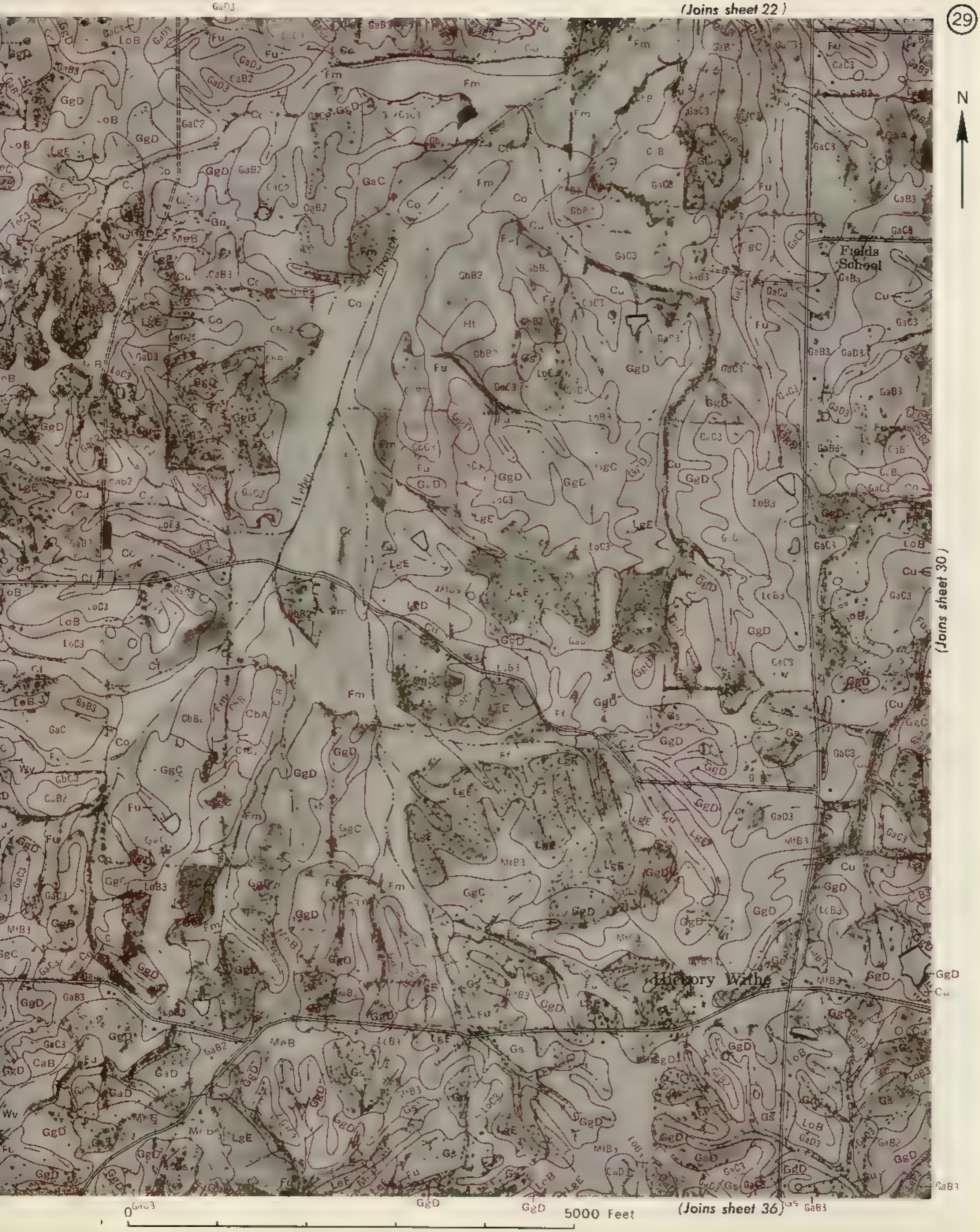
(Joins sheet 27)

(Joins sheet 35)

0 ½ 1 Mile


LOUISVILLE
AND
NASHVILLE
HARDEMAN
COUNTY
0
5000 Feet


SHELBY COUNTY
SHELBY COUNTY
0
1 Mile


(Joins sheet 22)
29
N
Fields School
Hickory Withe
(Joins sheet 30)
(Joins sheet 36)
Heber Branch
0
5000 Feet

30

(Joins sheet 23)

(Joins sheet 37)

0 ½ 1 Mile


(Joins sheet 31)
0
5000 Feet


(Joins sheet 30)
0
½
1 Mile

(Joins sheet 24)

32

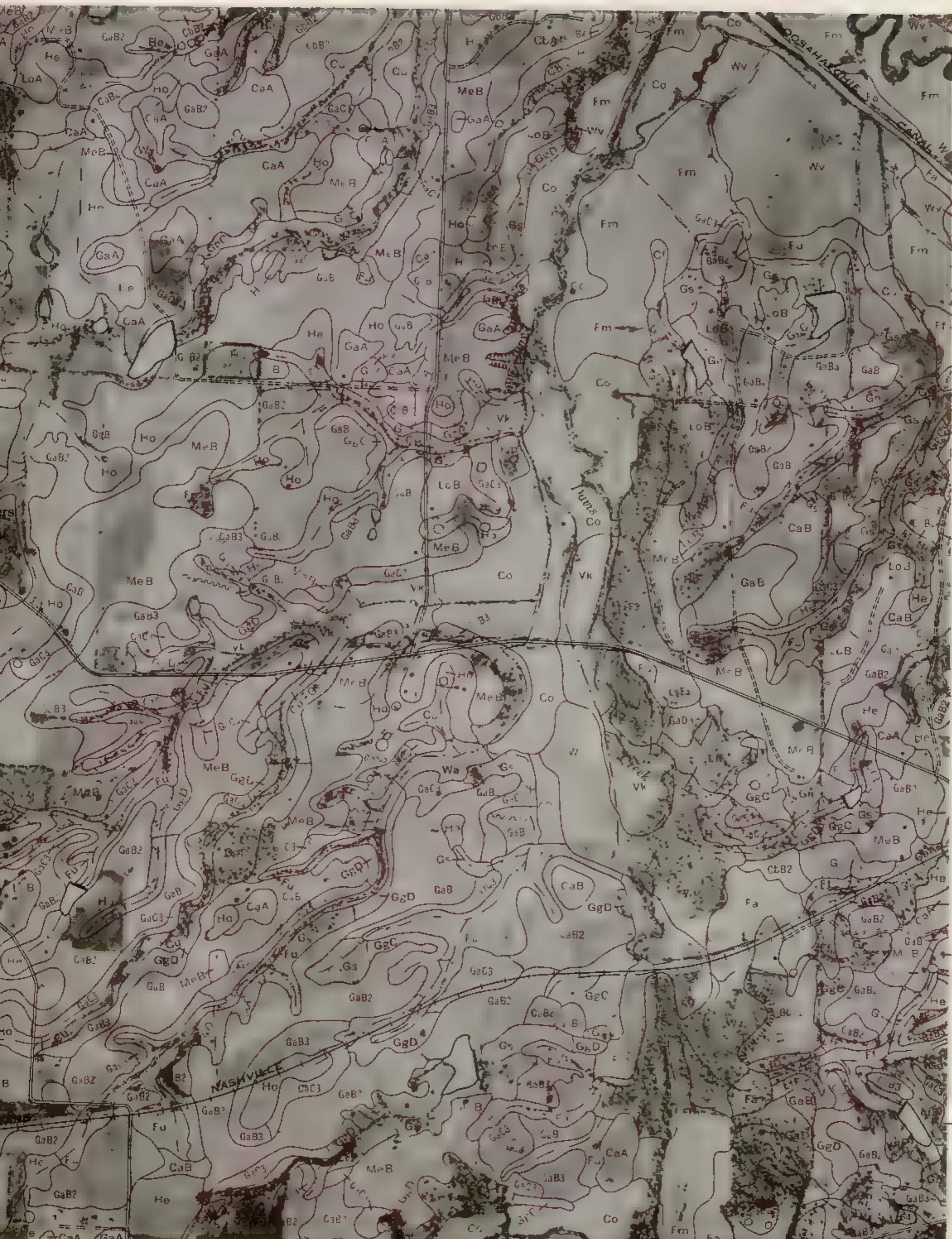
(Joins sheet 25)

N

(Joins sheet 31)

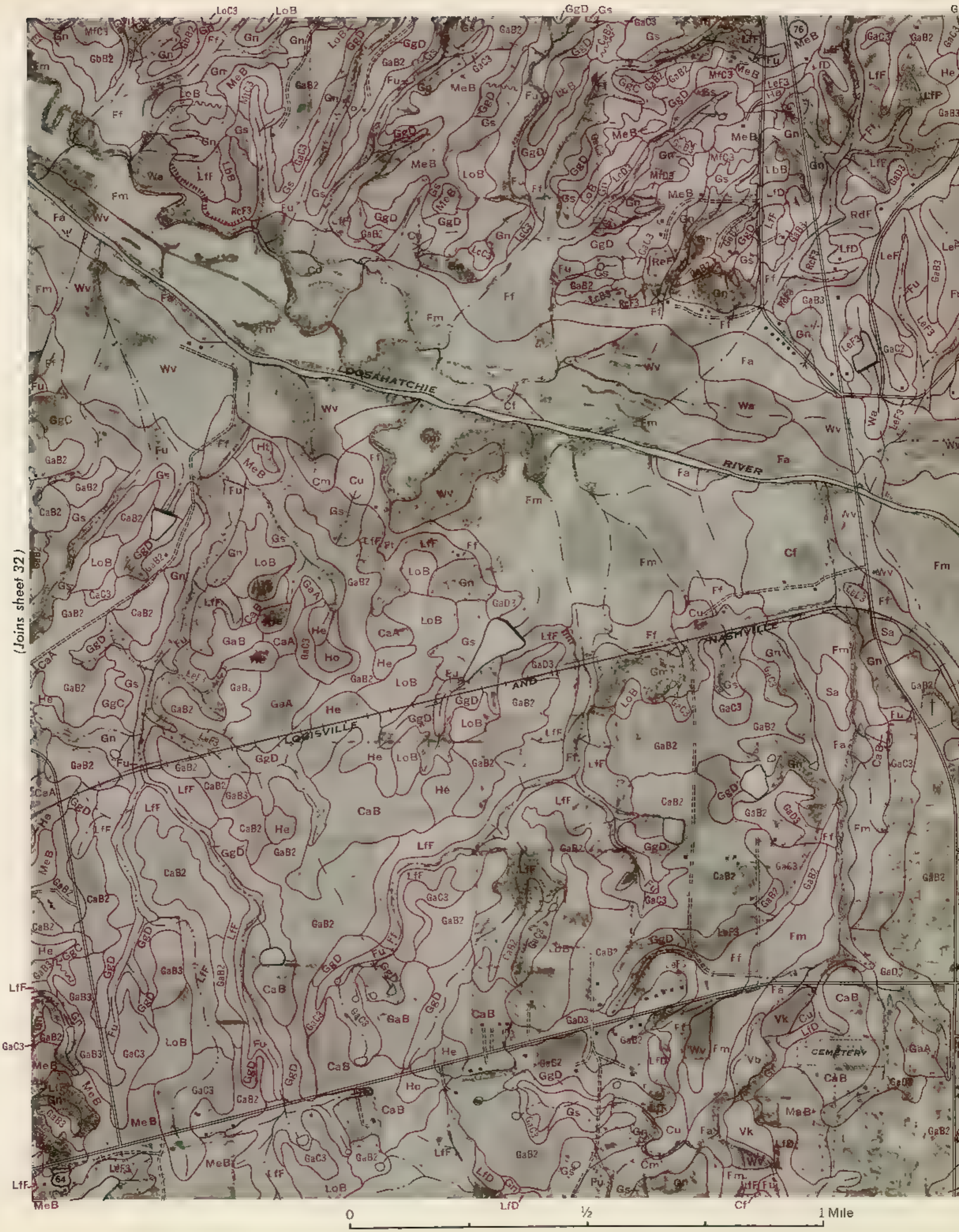
(Joins sheet 39)

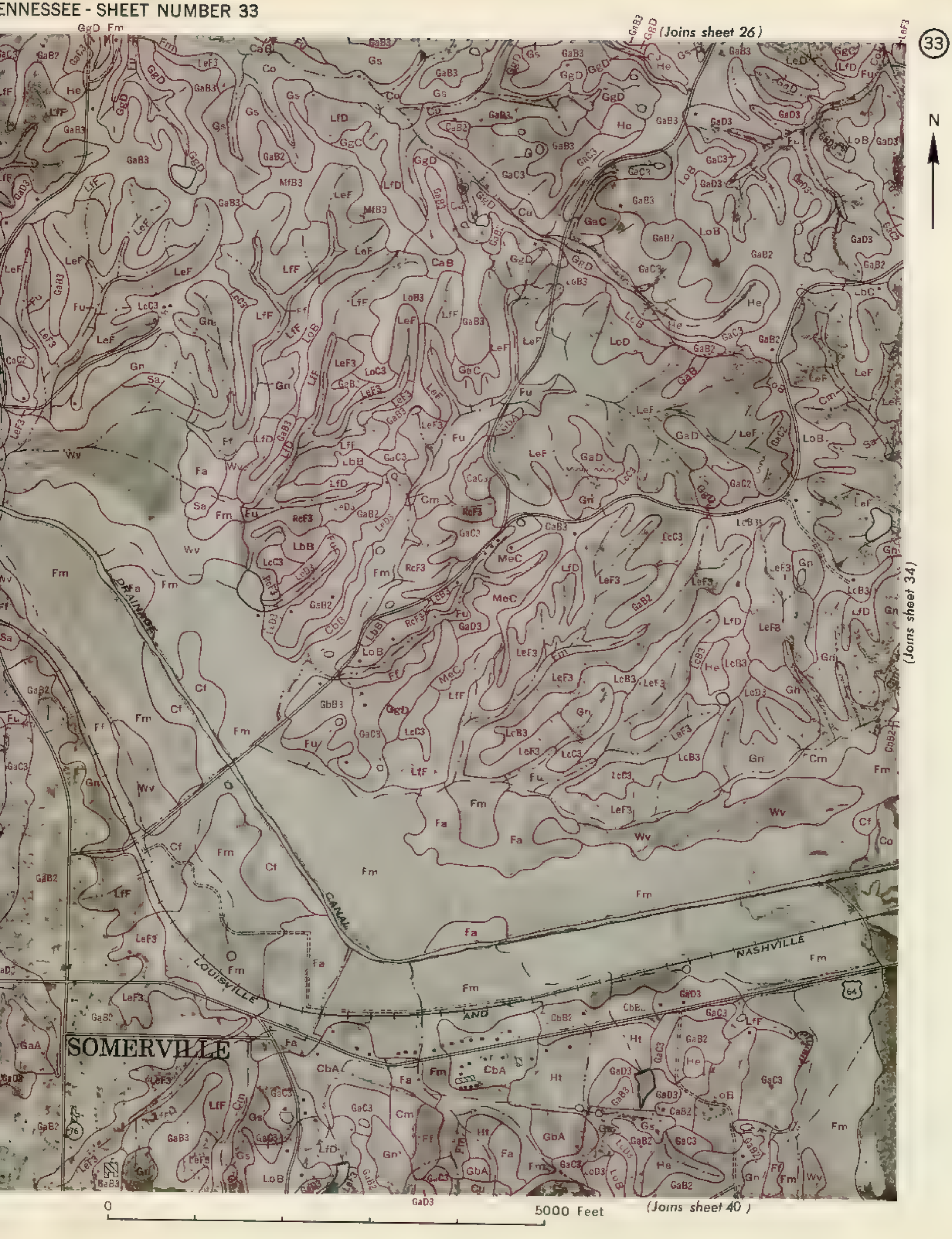
0 ½ 1 Mile



(Joins sheet 33)

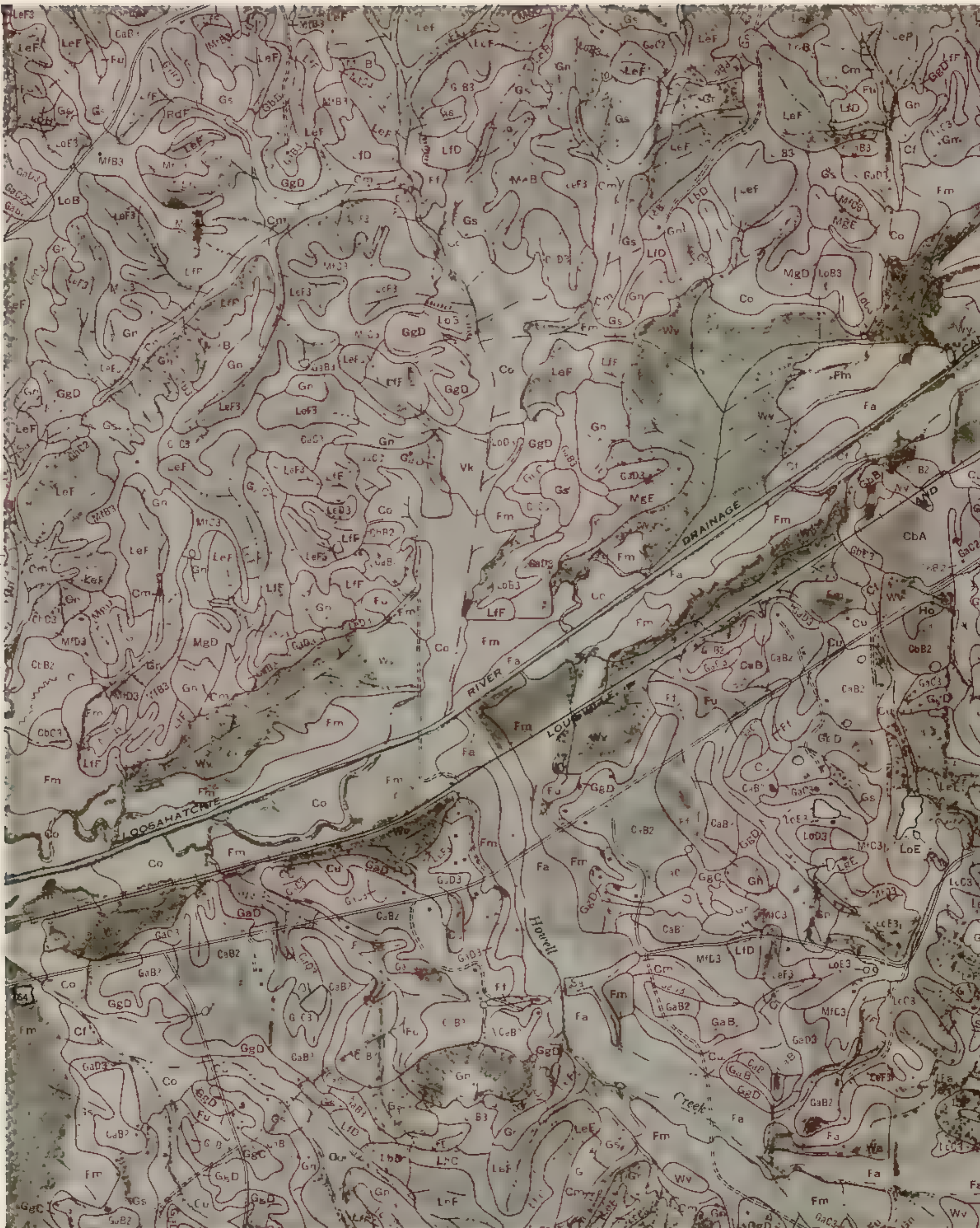
0 5000 Feet


LOOSAHATCHIE
RIVER
LOUISVILLE
AND
NASHVILLE
(Joins sheet 32)
CEMETERY
0
½
1 Mile


(Joins sheet 26)
33
N
(Joins sheet 34)
(Joins sheet 40)
DRAINAGE
CANAL
LOUISVILLE
AND
NASHVILLE
SOMERVILLE
64
76
0
5000 Feet

(34)

(Joins sheet 27)



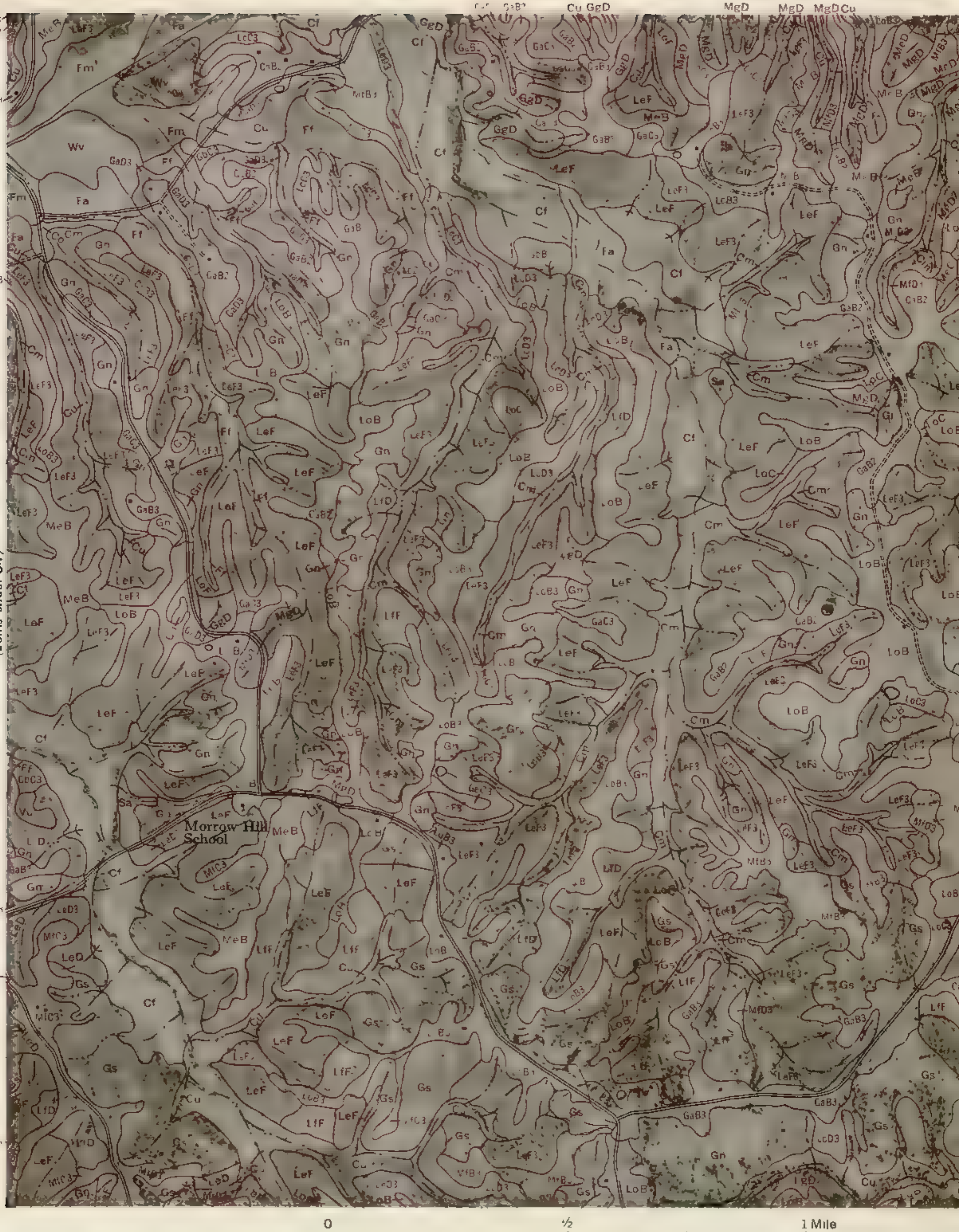
(Joins sheet 33)

(Joins sheet 41)

0 ½ 1 Mile

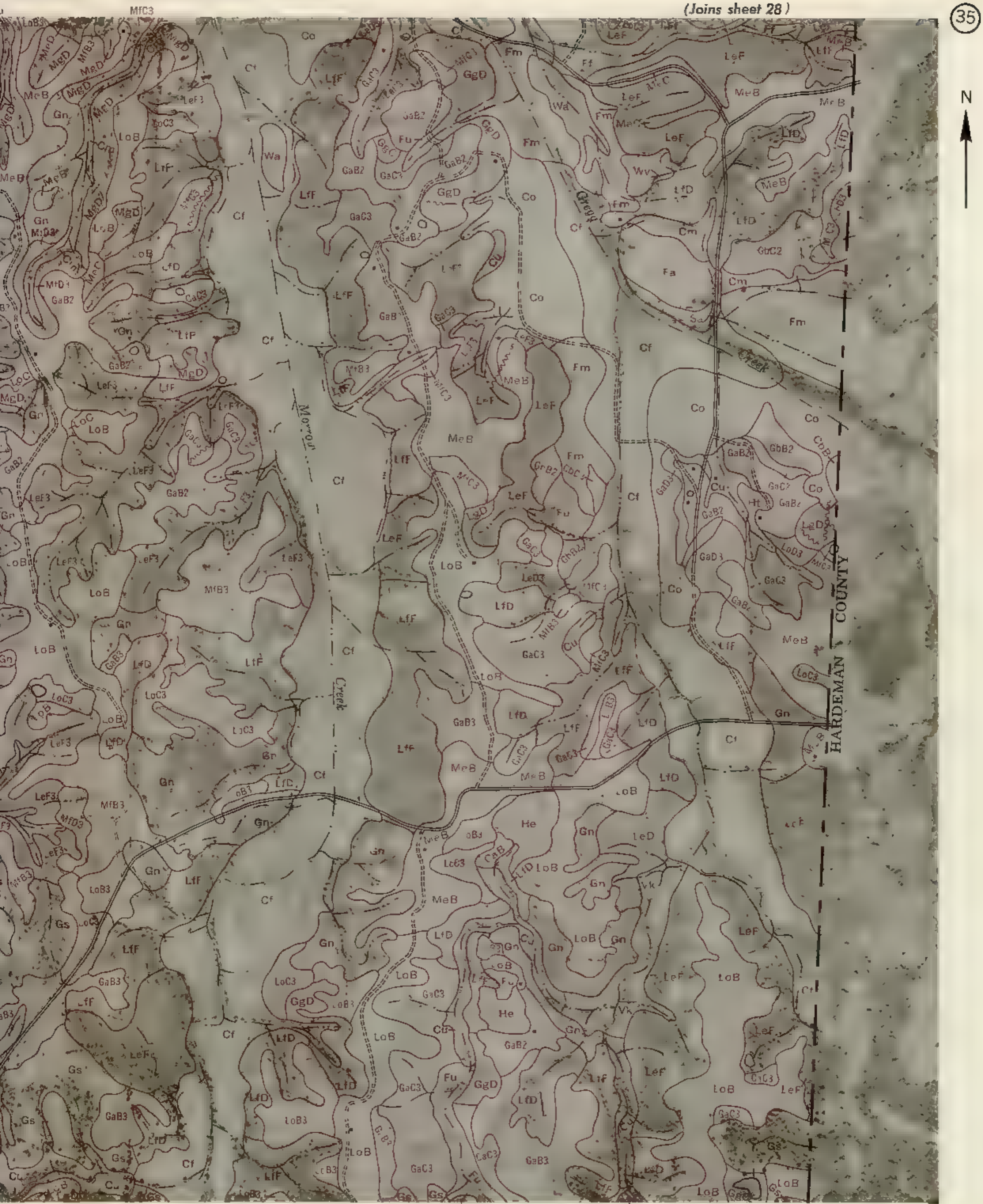
(Joins sheet 35)

0 5000 Feet


(Joins sheet 34)
Morrow Hill School
0
½
1 Mile

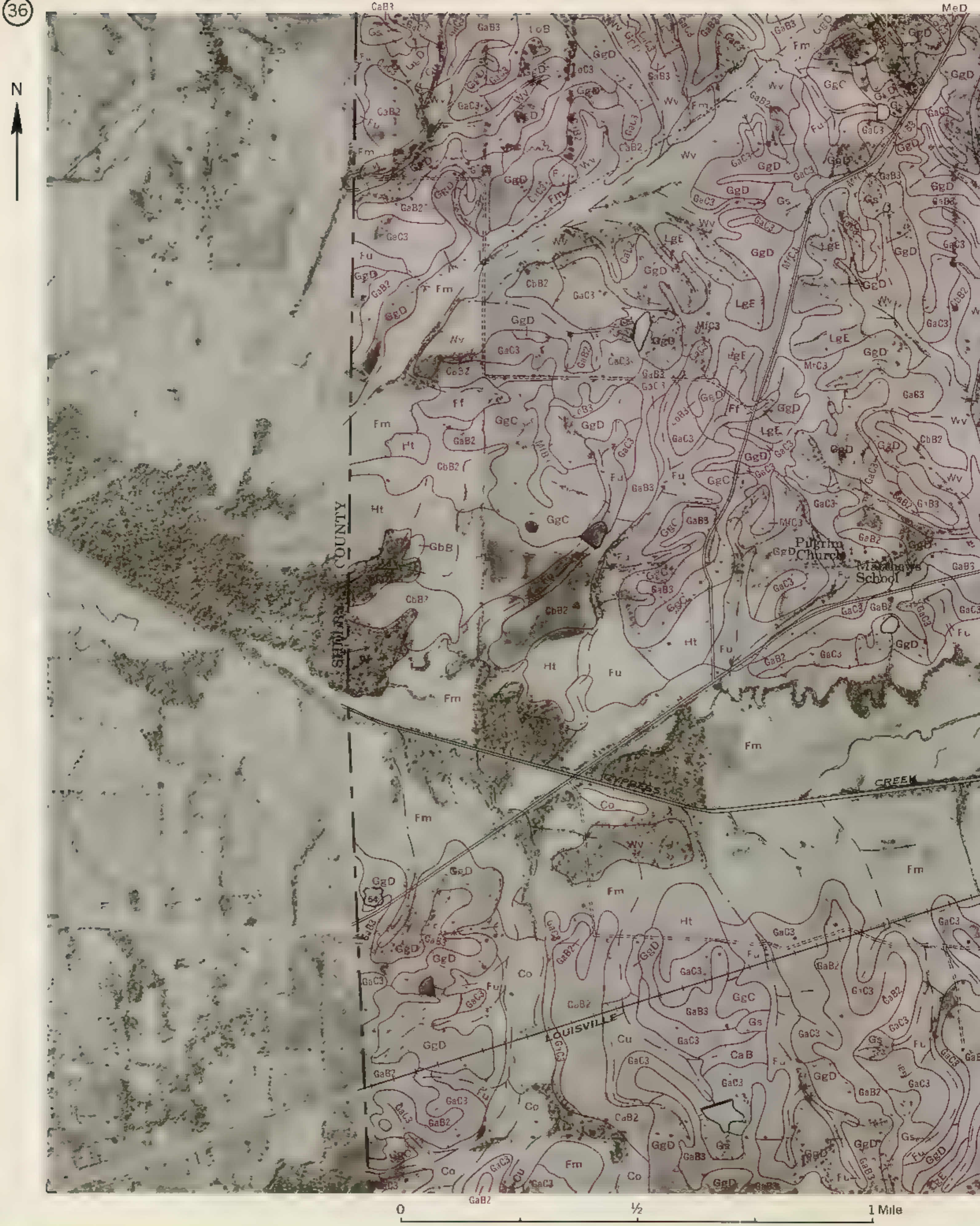
(Joins sheet 28)

35



0 5000 Feet

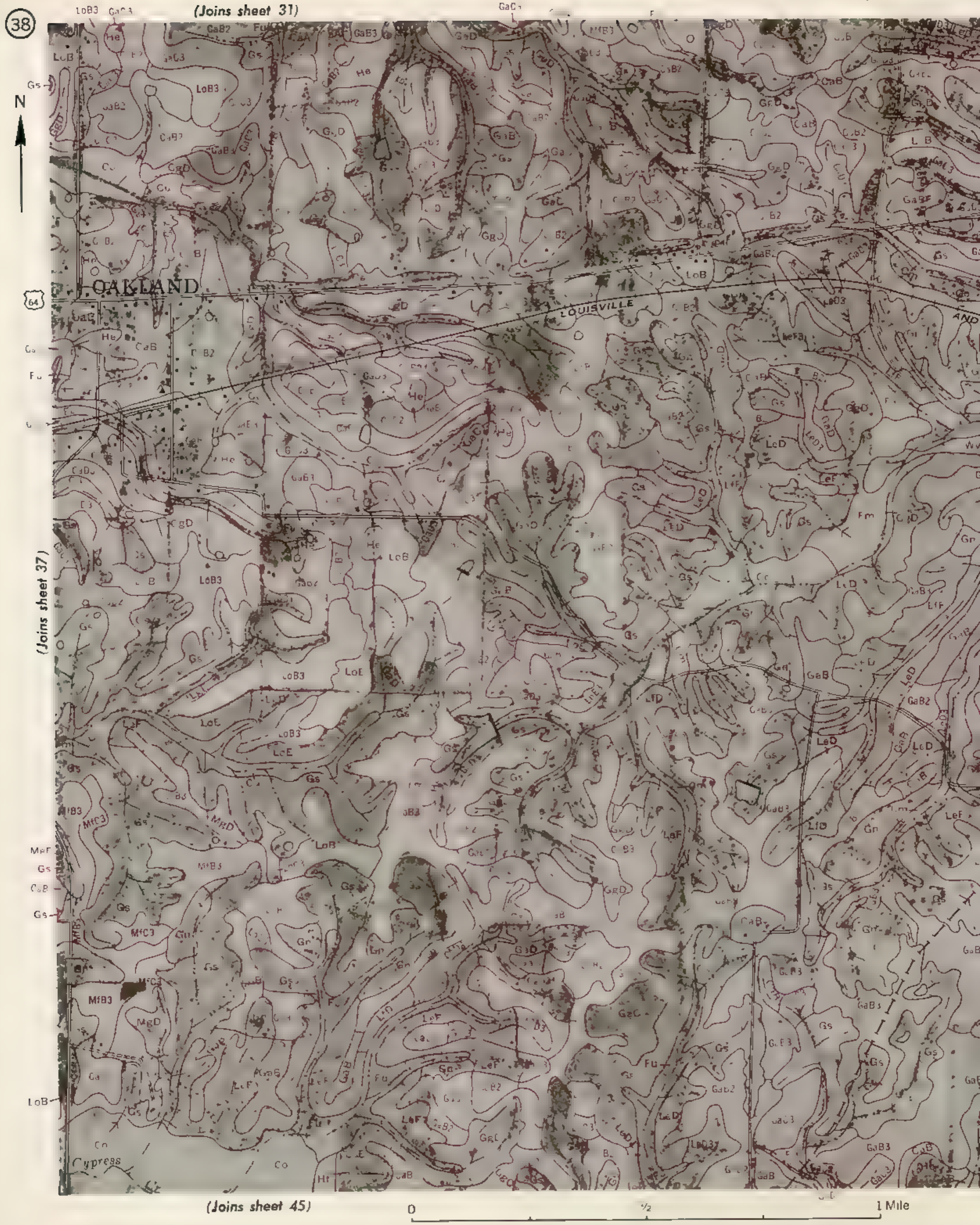
(Joins sheet 42)


N
SHELBY COUNTY
Pilgrim Church
Matthews School
CYPRESS
CREEK
LOUISVILLE
0
½
1 Mile

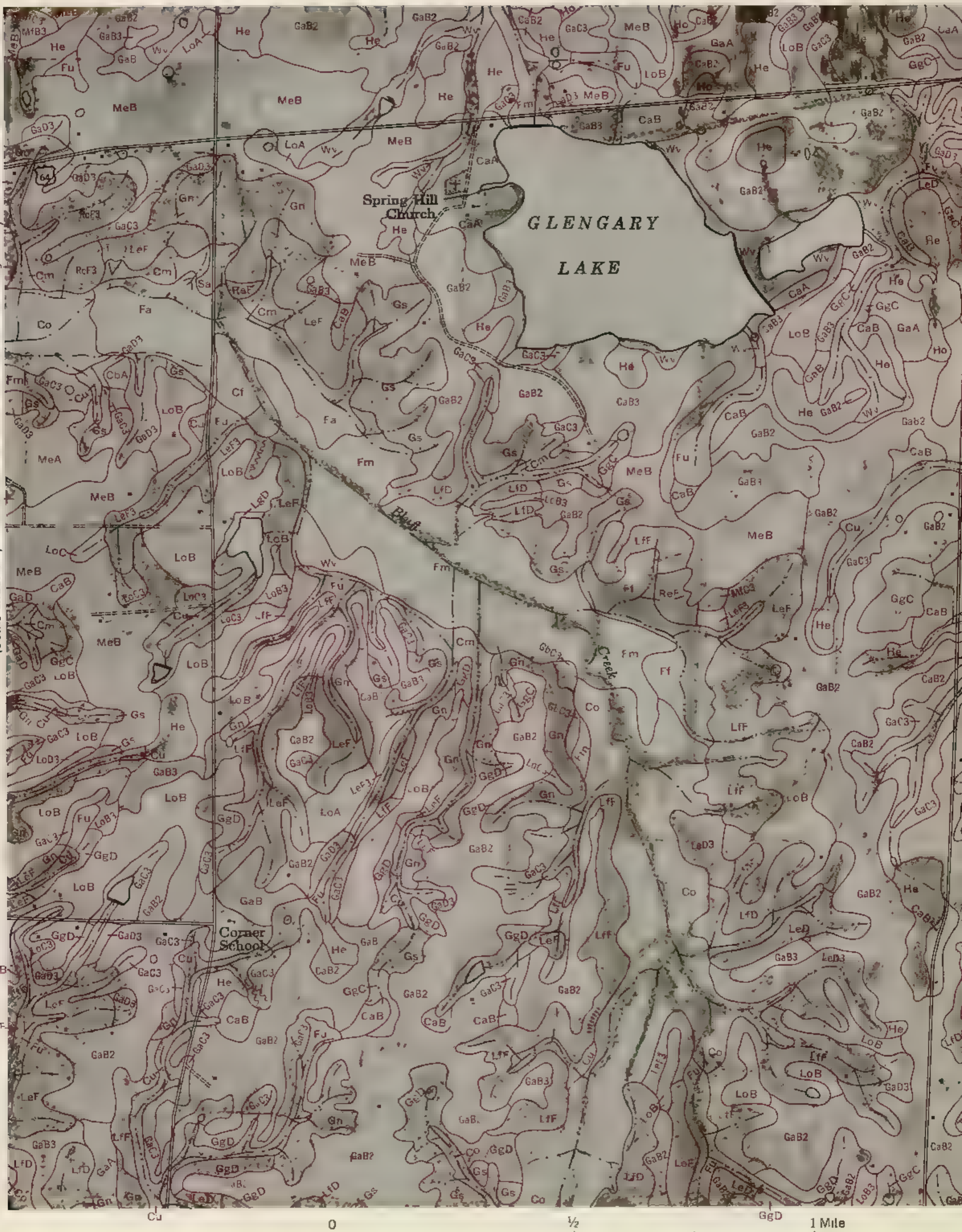

(Joins sheet 29
(Joins sheet 37)
(Joins sheet 43)
DRAINAGE
NASHVILLE
CANAL
AND
0
5000 Feet

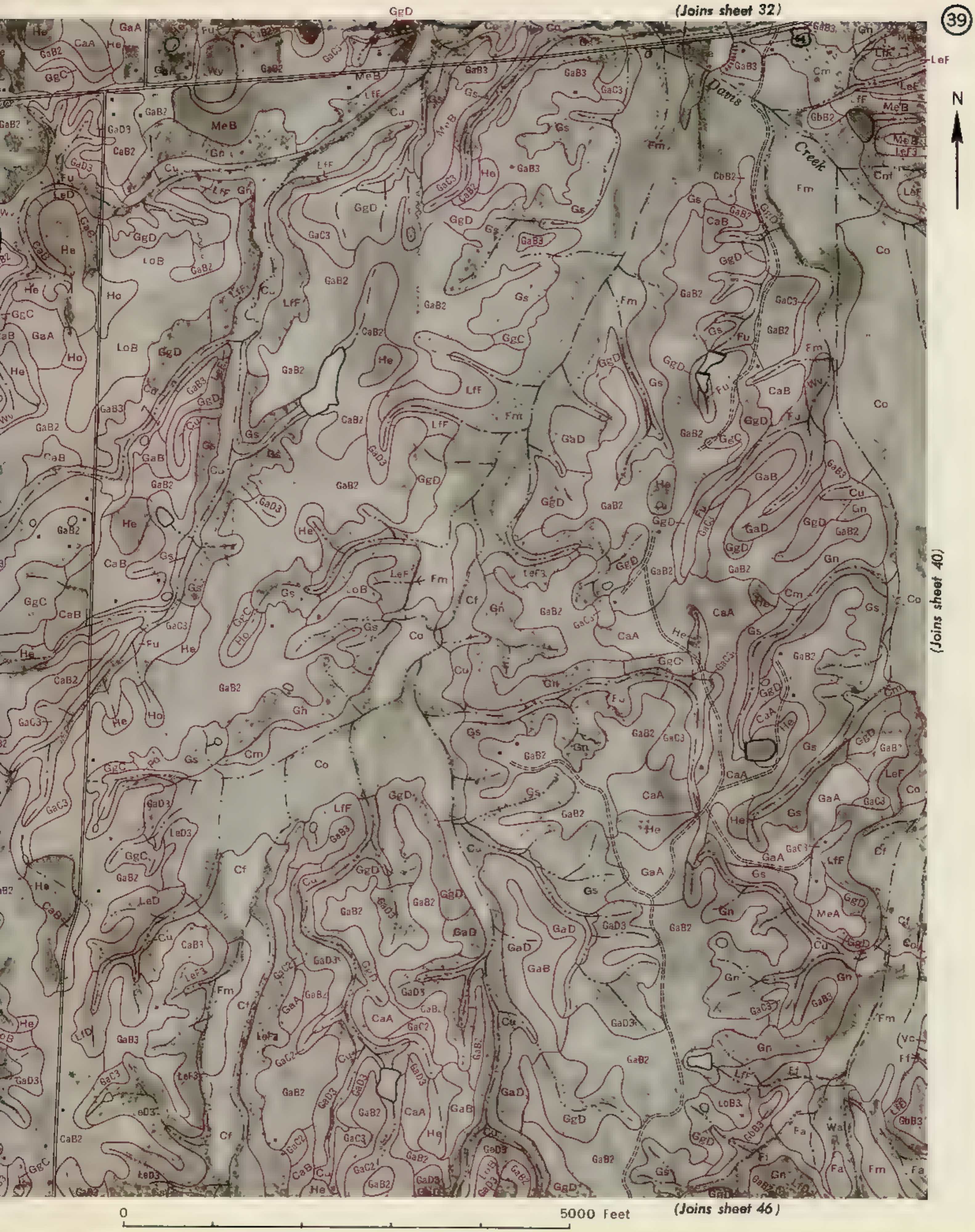

(Joins sheet 36)
LOUISVILLE
CYPRESS
CREEK
64
0
½
1 Mile


(Joins sheet 30)
37
N
Bell Grove Church
OAKLAND
64
Oakland School
NASHVILLE
AND
DRAINAGE
CANAL
Cypress
Creek
(Joins sheet 38)
(Joins sheet 44)
0
5000 Feet


38
(Joins sheet 31)
(Joins sheet 37)
(Joins sheet 45)
N
OAKLAND
64
LOUISVILLE
AND
Cypress
0
½
1 Mile


NASHVILLE
AND
Bluff
Creek
Jones
Creek
Jones
Creek
(Joins sheet 39)
0
5000 Feet

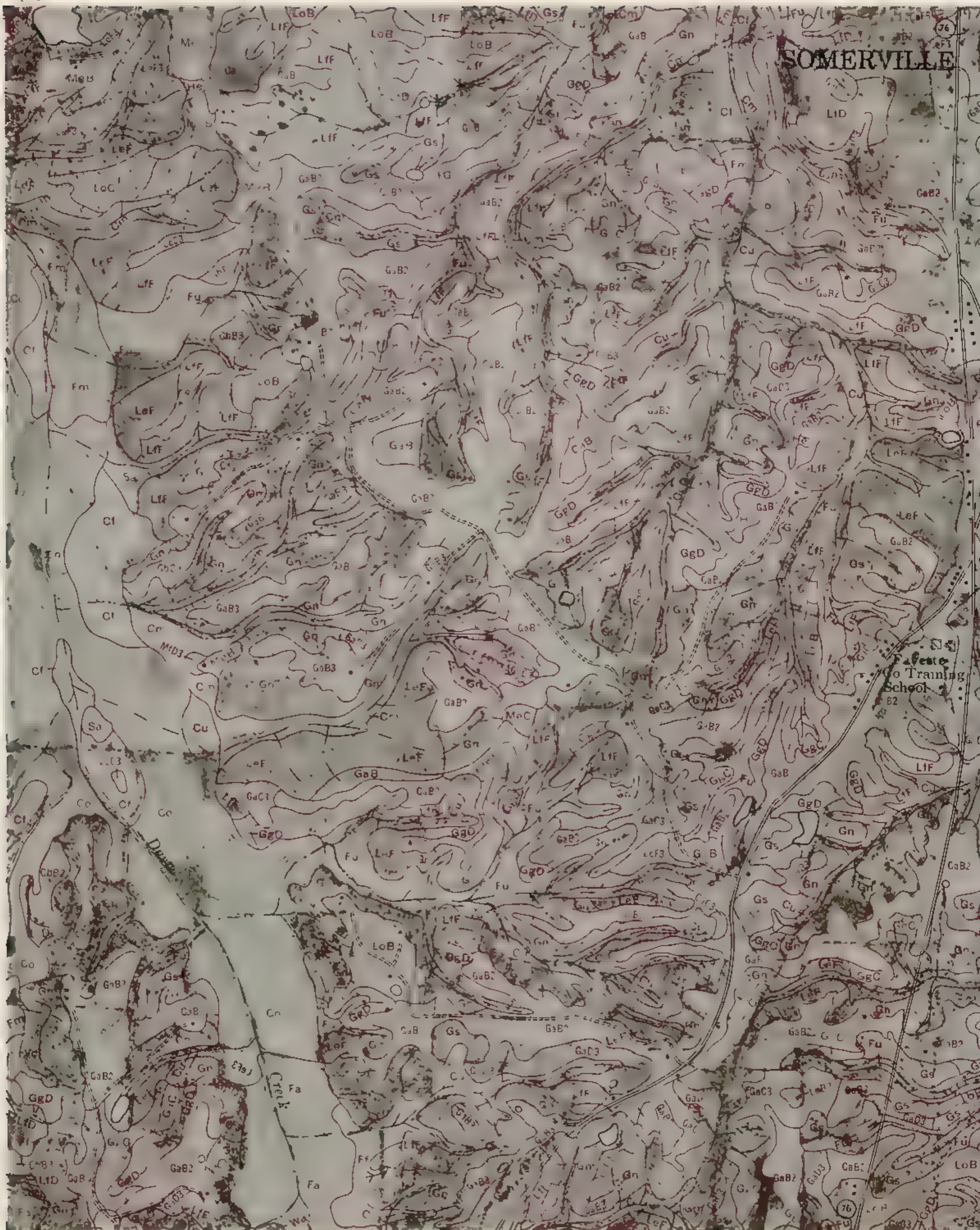

Spring Hill Church
GLENGARY
LAKE
Bluff
Creek
Corner School
(Joins sheet 38)
0
½
1 Mile


(Joins sheet 32)
39
N
Davis Creek
(Joins sheet 40)
(Joins sheet 46)
0
5000 Feet

(Joins sheet 33)

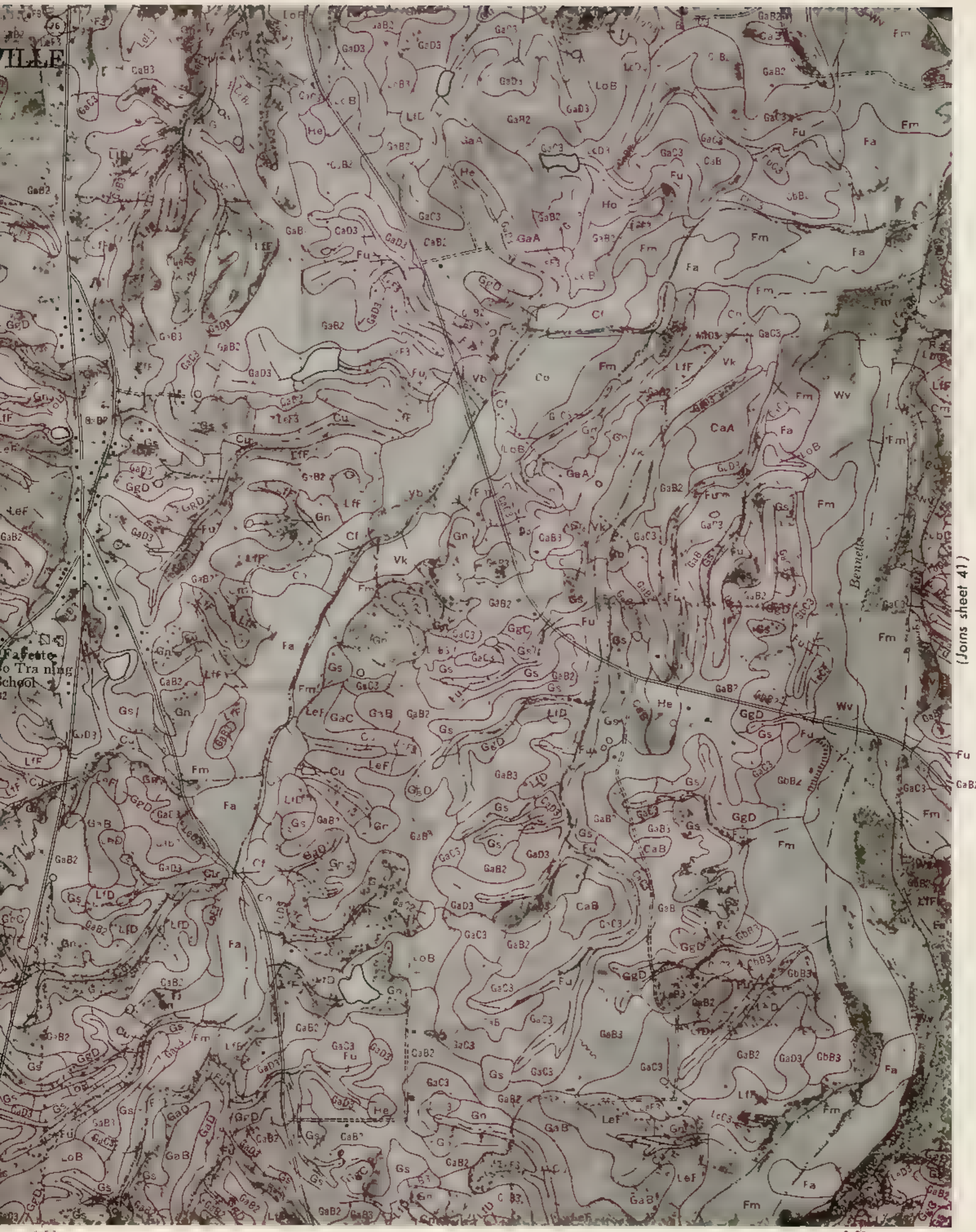
N

(Joins sheet 39)

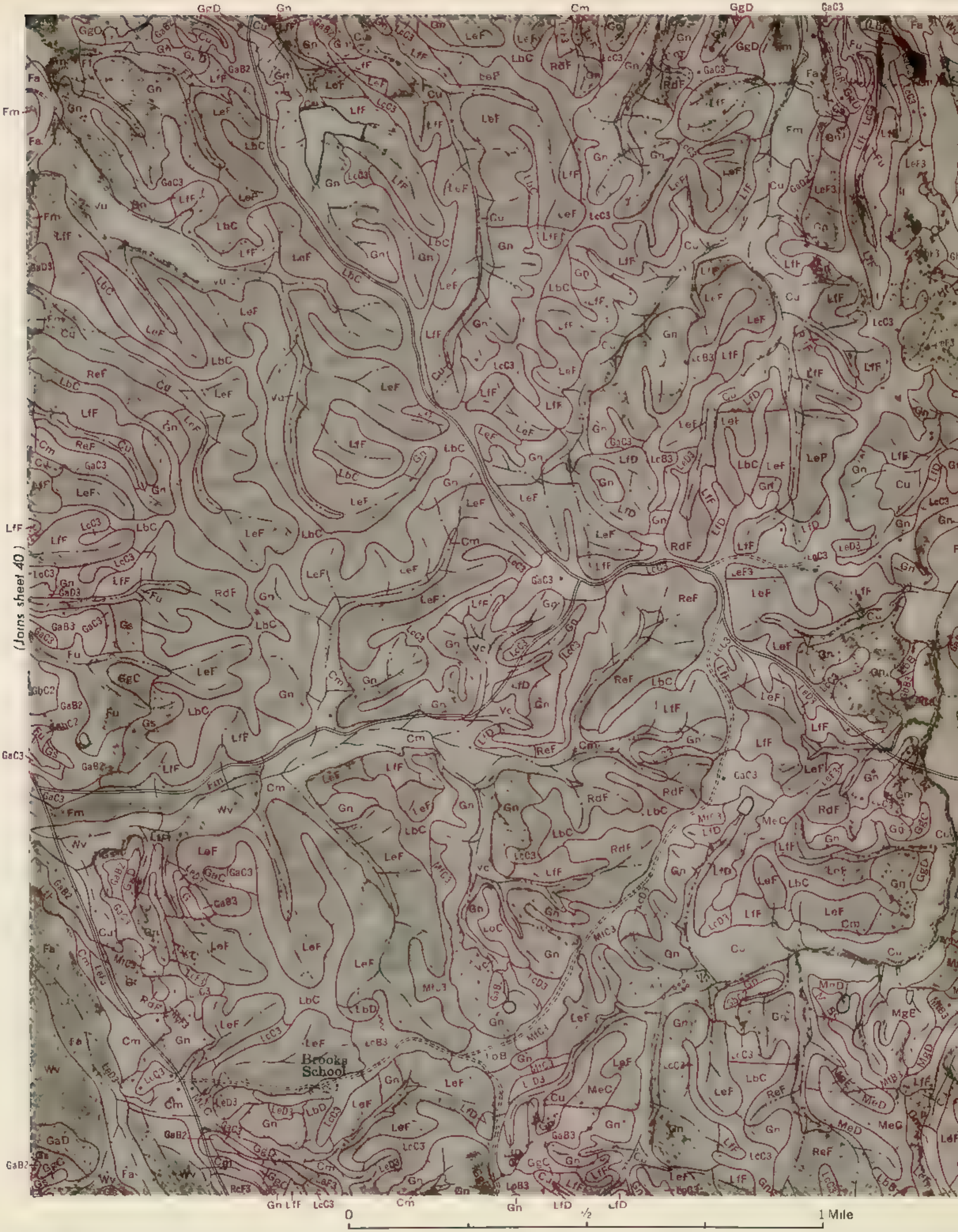


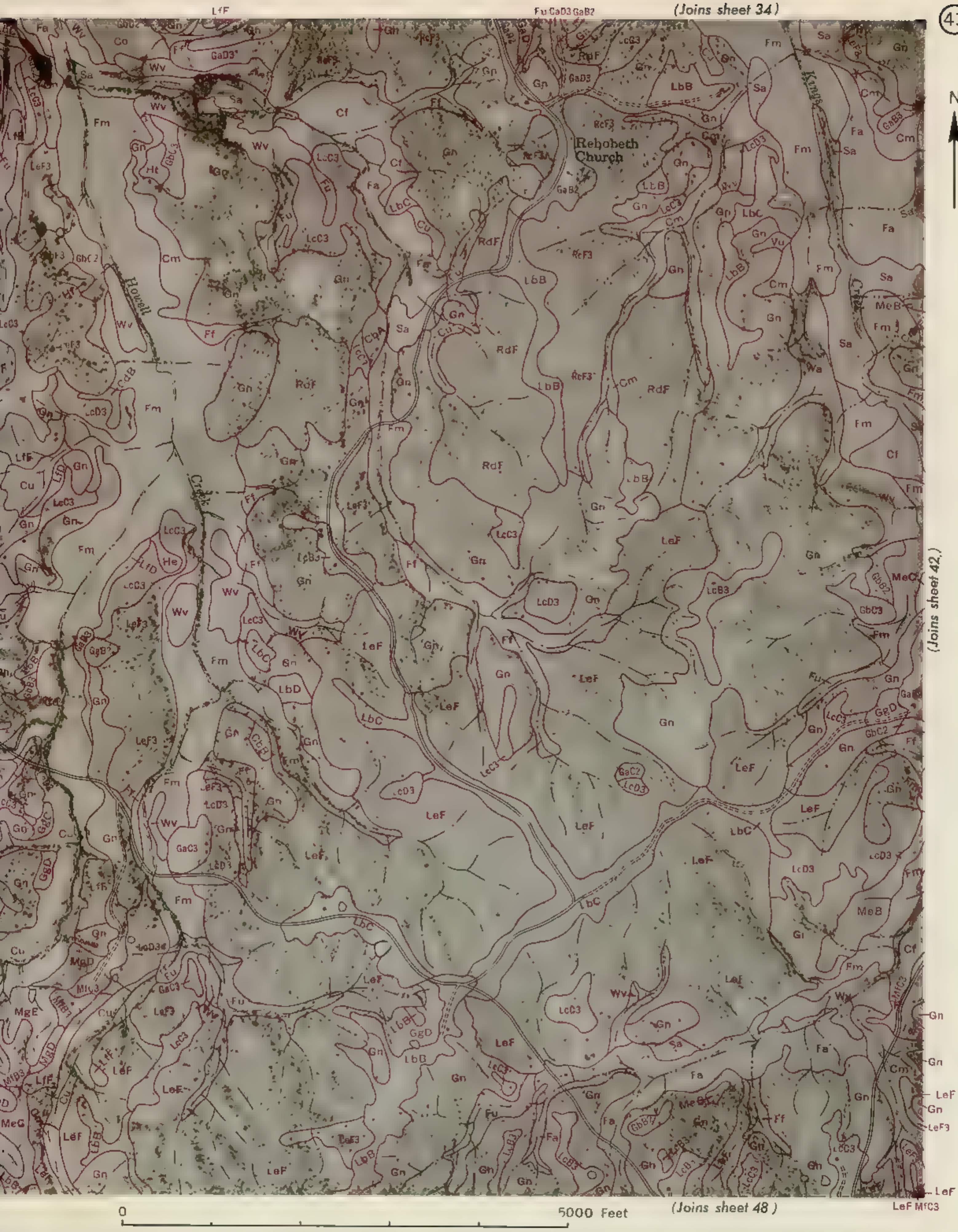
(Joins sheet 47)

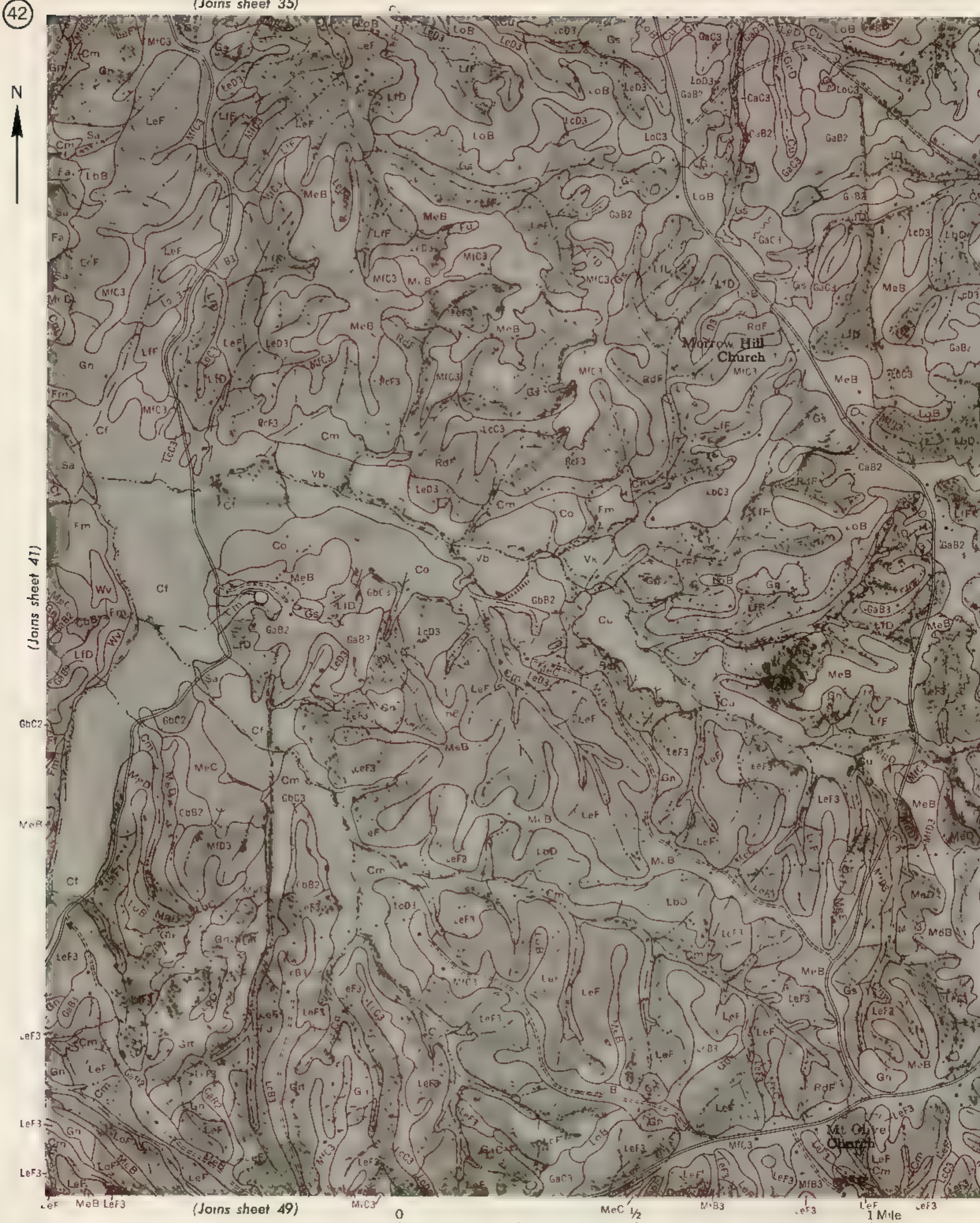
0 ½ 1 Mile



0 5000 Feet

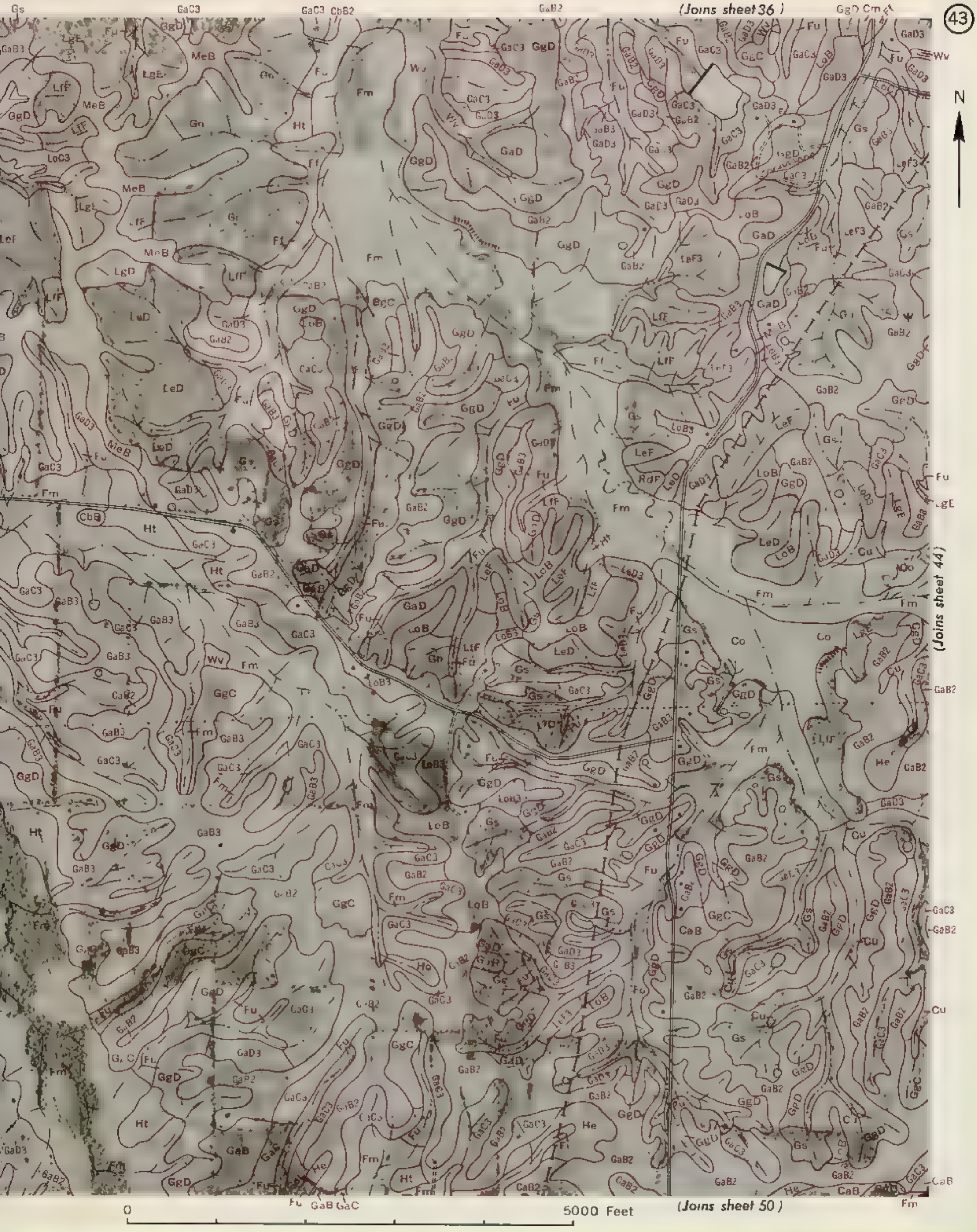

(Joins sheet 40)
Brooks School
0
1/2
1 Mile


(Joins sheet 34)
41
N
Rehobeth Church
Howell Creek
(Joins sheet 42)
(Joins sheet 48)
0
5000 Feet


(Joins sheet 35)
(Joins sheet 41)
(Joins sheet 49)
N
Morrow Hill Church
Mt. Olive Church
0
1/2
1 Mile

0 5000 Feet


SHELBY COUNTY
Creek
0
1/2
1 Mile

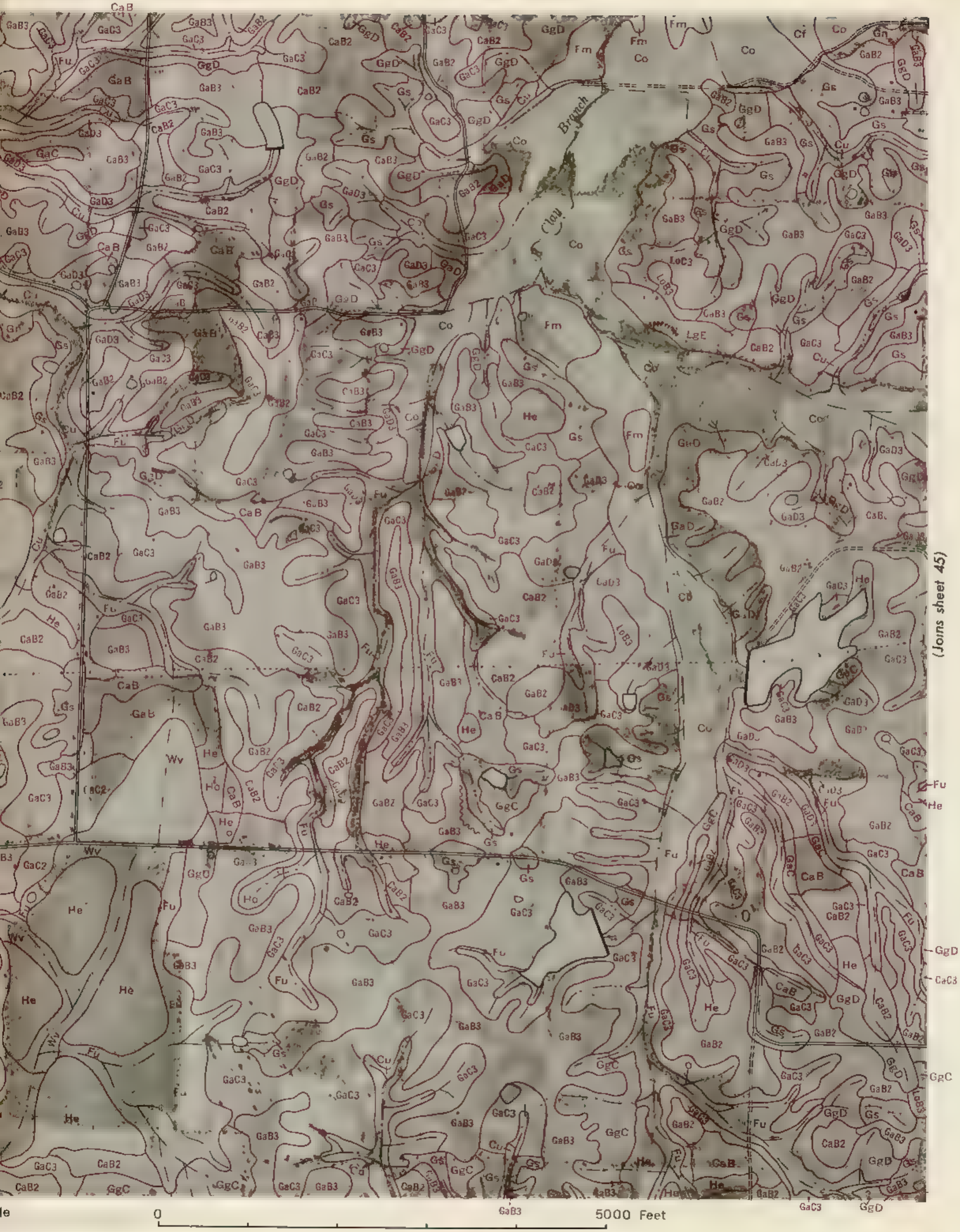

(Joins sheet 36)
43
N
(Joins sheet 44)
(Joins sheet 50)
0
5000 Feet

(44)

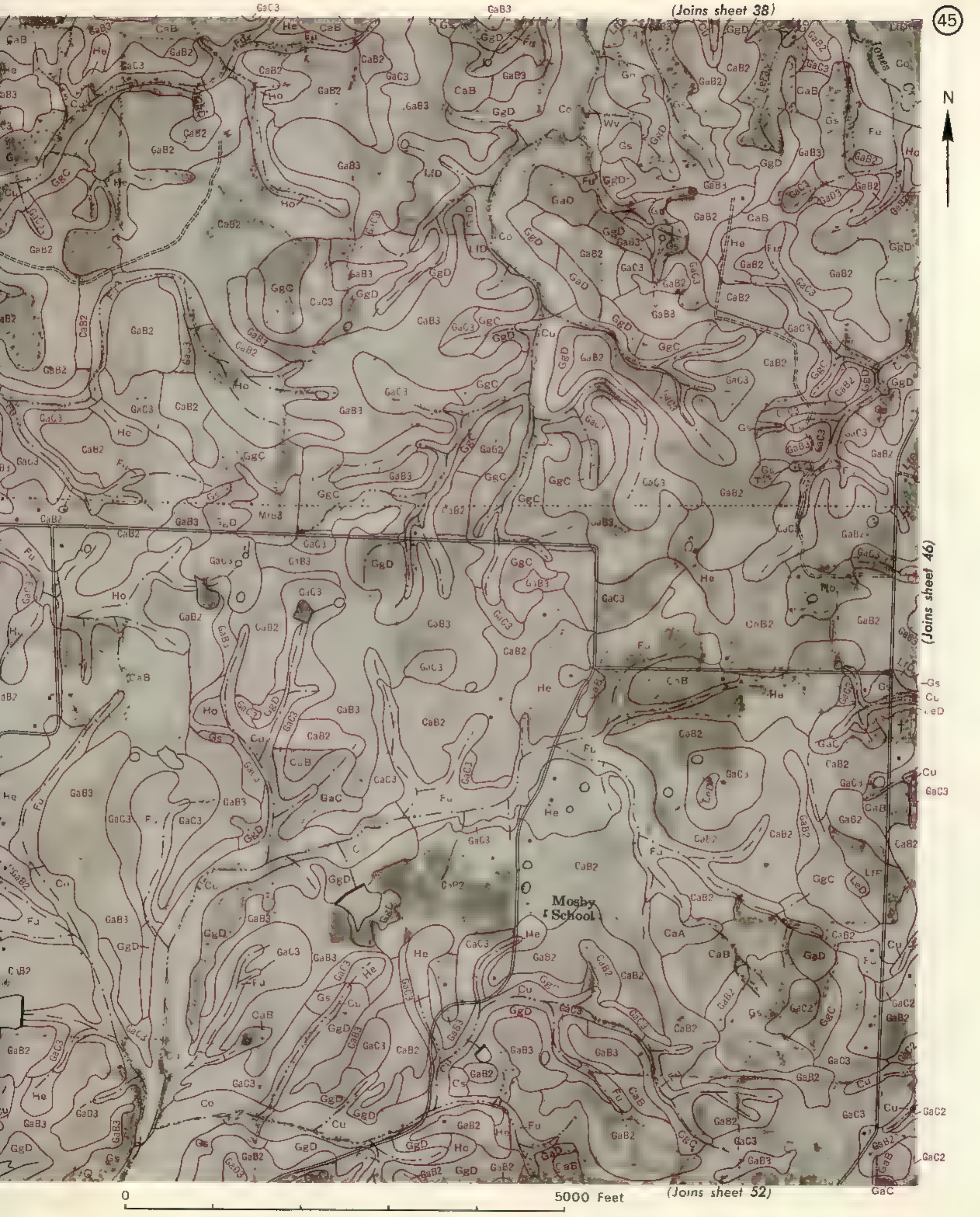
(Joins sheet 37)

(Joins sheet 51)

0 ½ 1 Mile


Clay
Branch
(Joins sheet 45)
0
5000 Feet


Cypress
Creek
(Joins sheet 44)
0
½
1 Mile


(Joins sheet 38)
45
N
(Joins sheet 46)
(Joins sheet 52)
Mosby School
Jones
0
5000 Feet

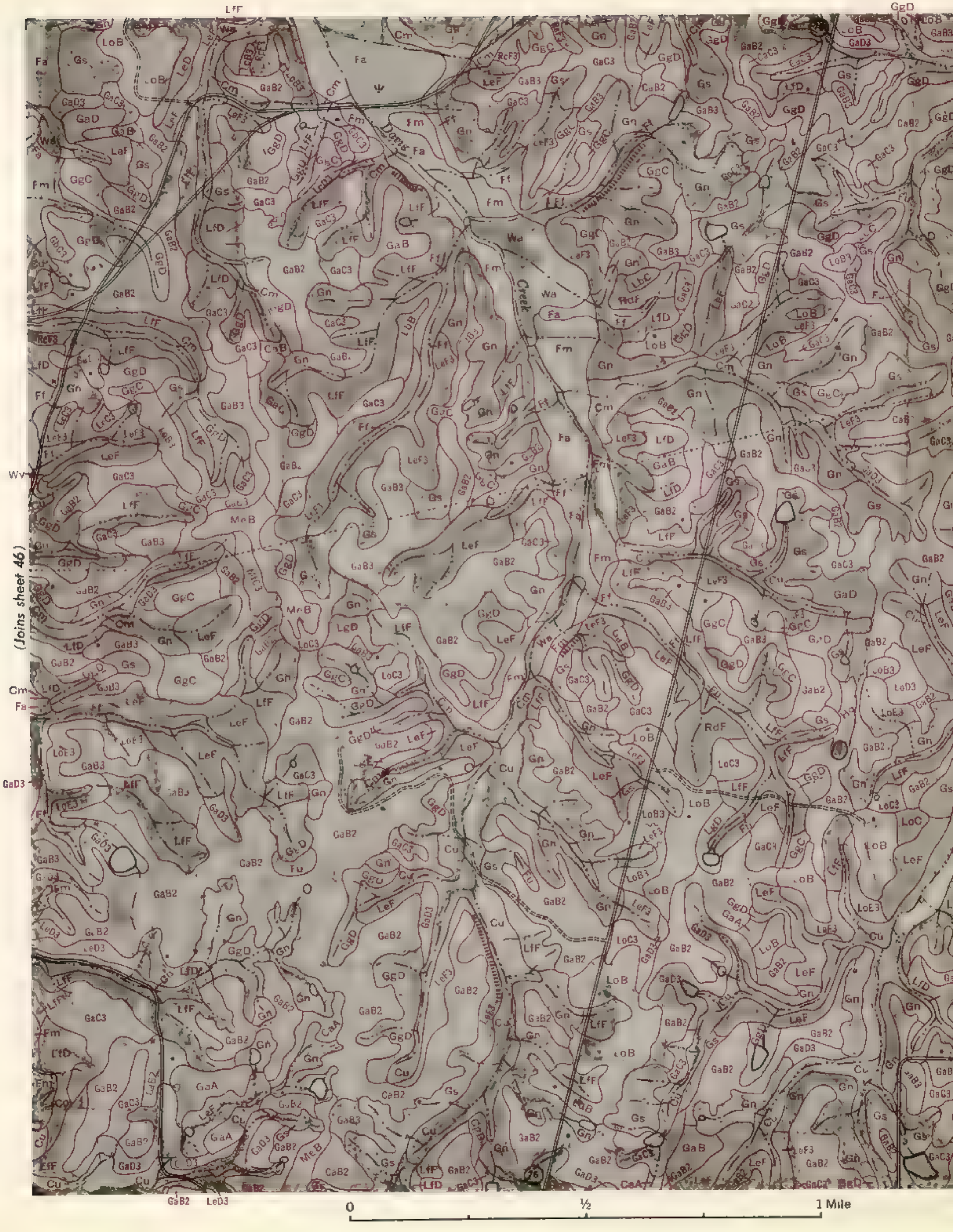
46

(Joins sheet 39)

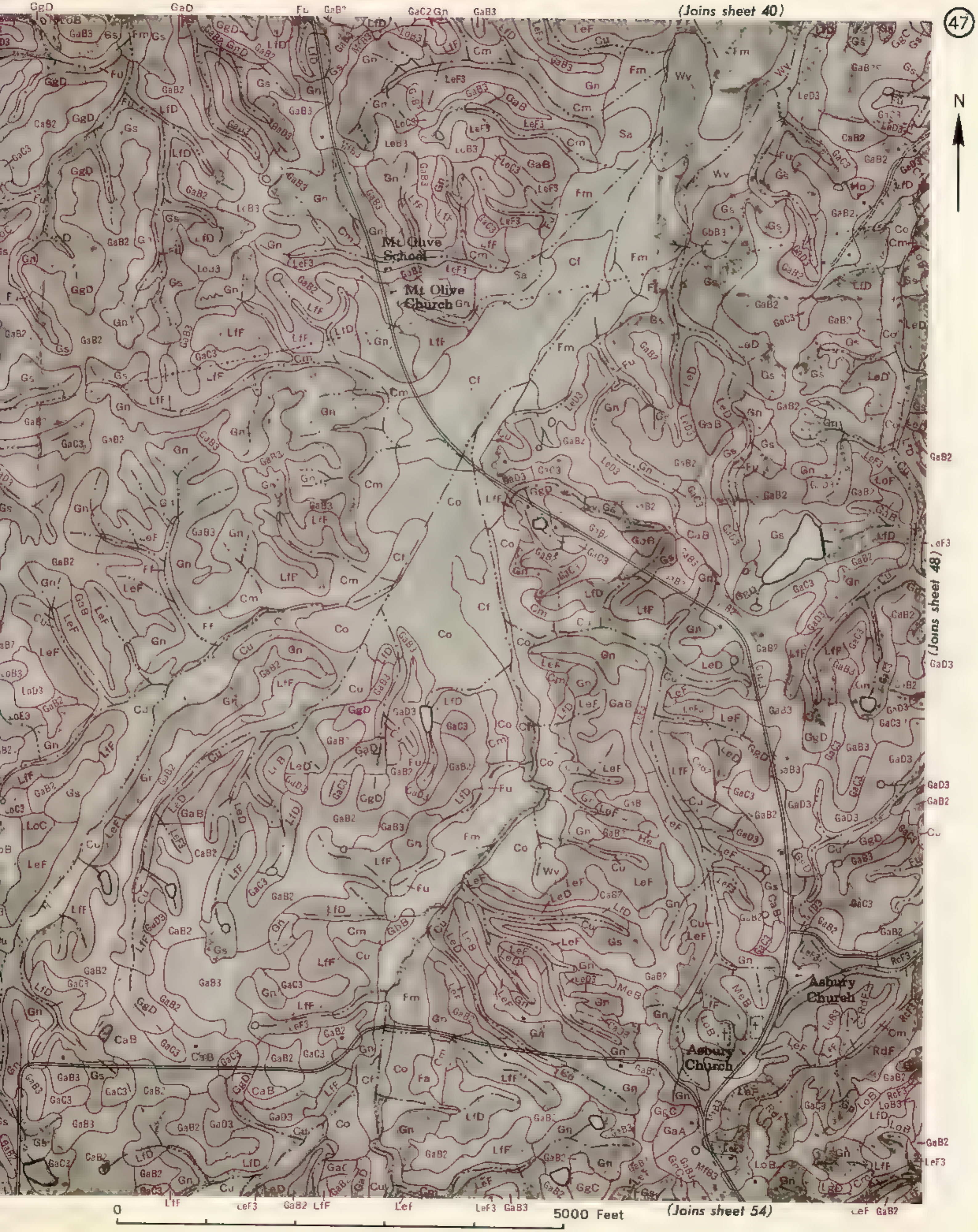
(Joins sheet 53)

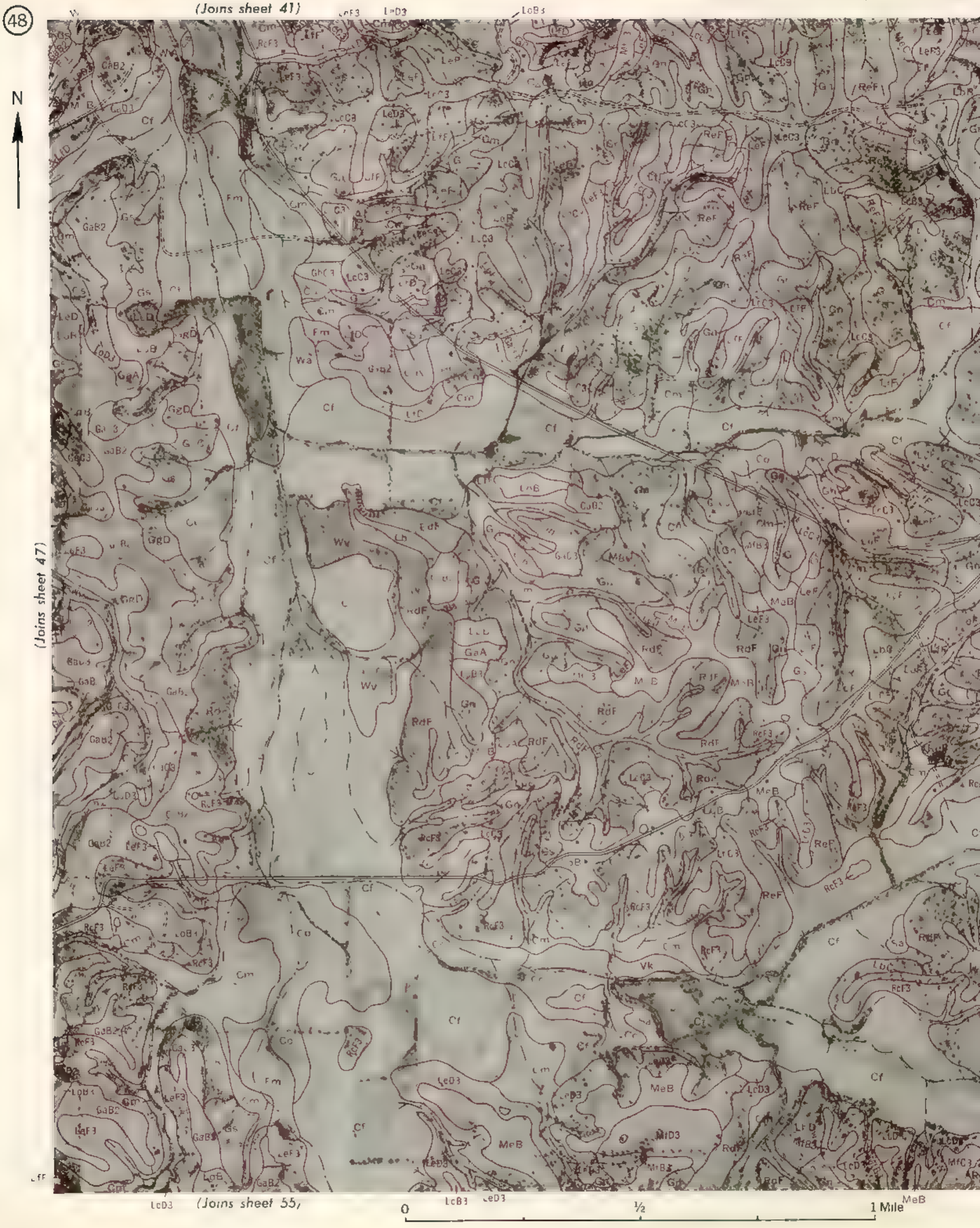
0 ½ 1 Mile


Wesley Church
Shady Grove Church
(Joins sheet 47)
0
5000 Feet

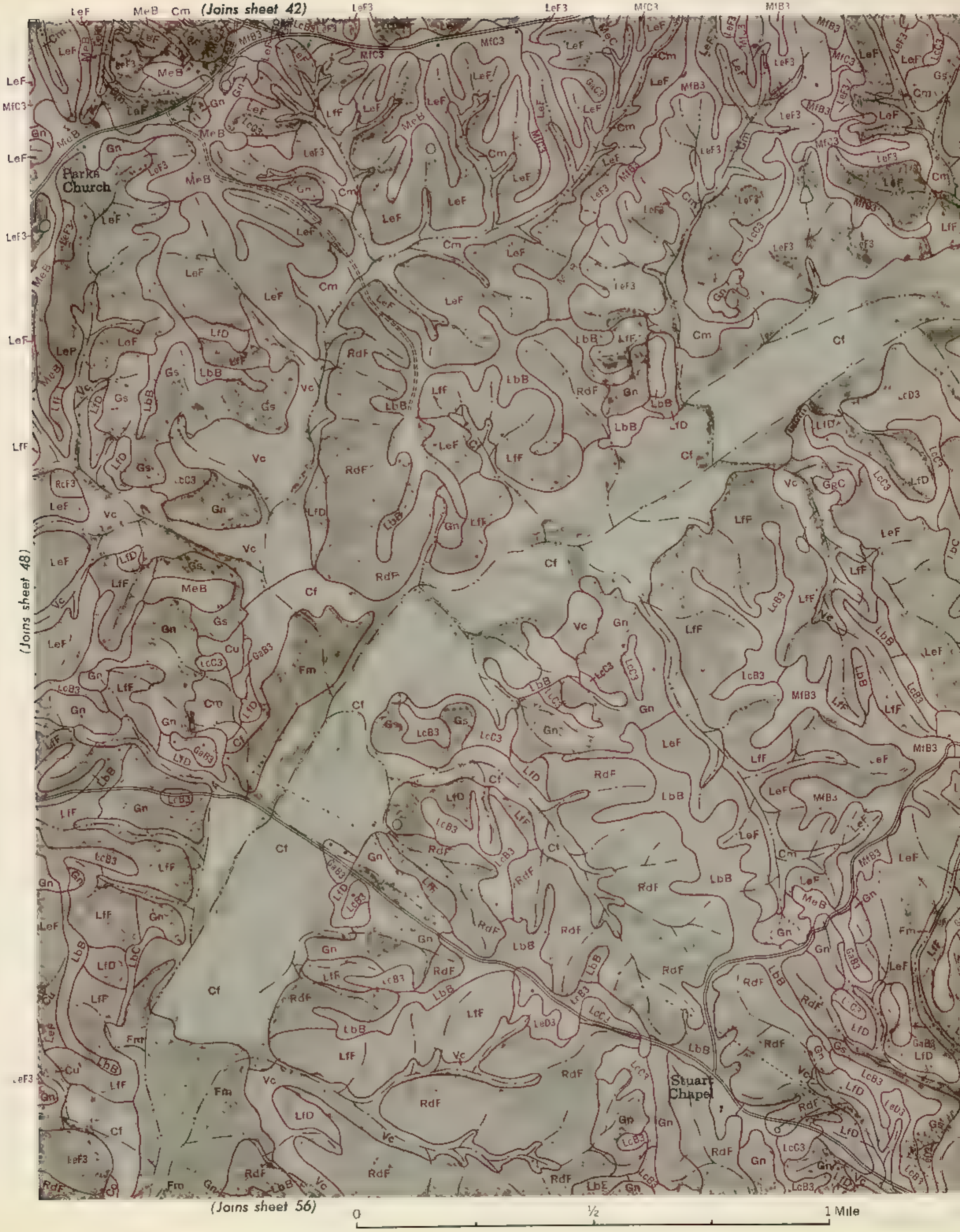

(Joins sheet 46)
Davis Creek
0
½
1 Mile

TENNESSEE - SHEET NUMBER 47

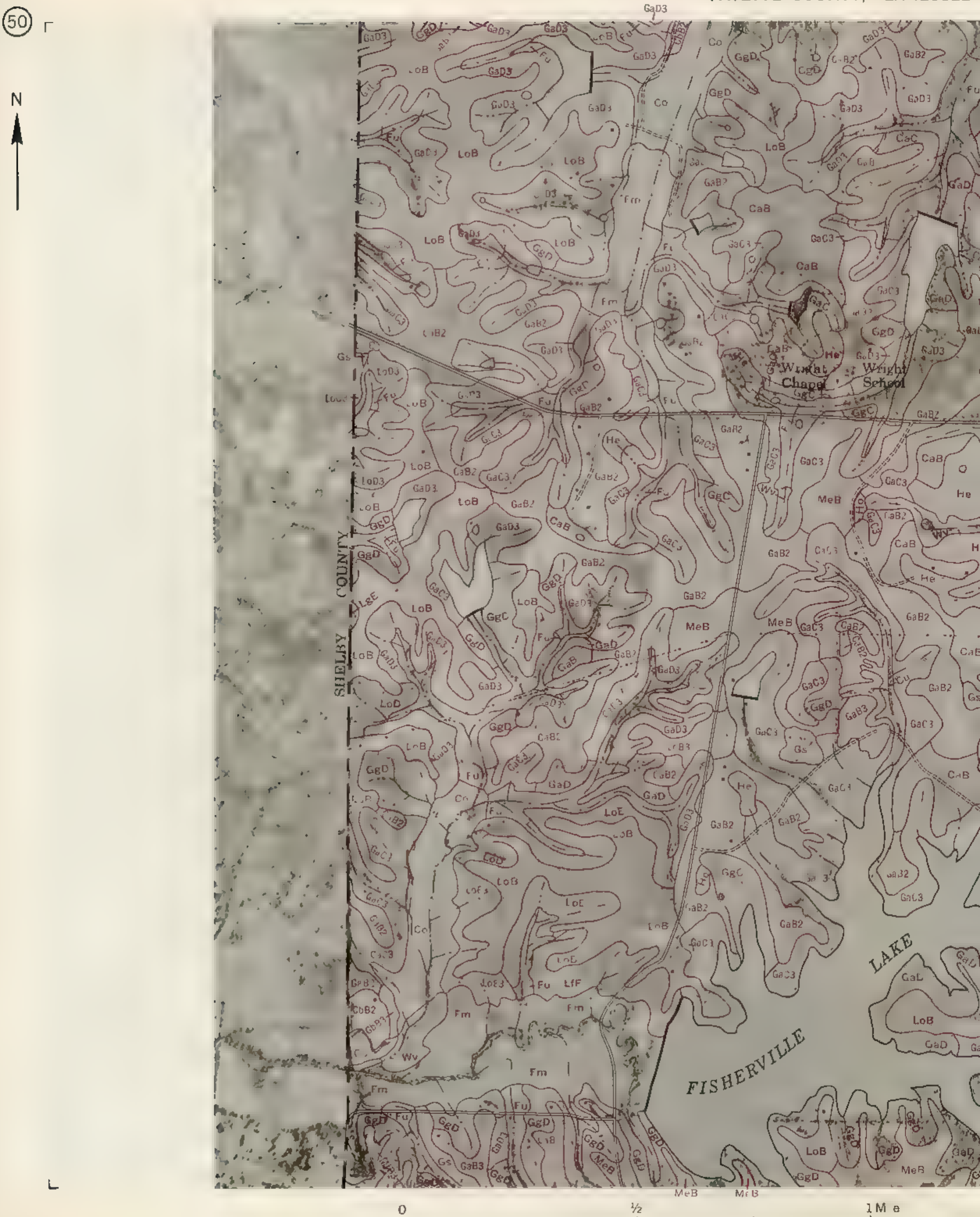



48
(Joins sheet 41)
(Joins sheet 47)
(Joins sheet 55)
N
0
½
1 Mile

TENNESSEE - SHEET NUMBER 48


(Joins sheet 42)
(Joins sheet 48)
(Joins sheet 56)
Parks Church
Stuart Chapel
0
½
1 Mile


49
N
HARDEMAN COUNTY
McKinnie
Creek
0
5000 Feet


N
SHELBY COUNTY
Wright Chapel
Wright School
FISHERVILLE LAKE
0
½
1 Mile


(Joins sheet 43)
(Joins sheet 51)
(Joins sheet 57)
Canadaville
Grays
Creek
0
5000 Feet


Canadaville School
Creek
Alexander
(Joins sheet 50)
0
1/2
1 Mile

(Joins sheet 44)

51

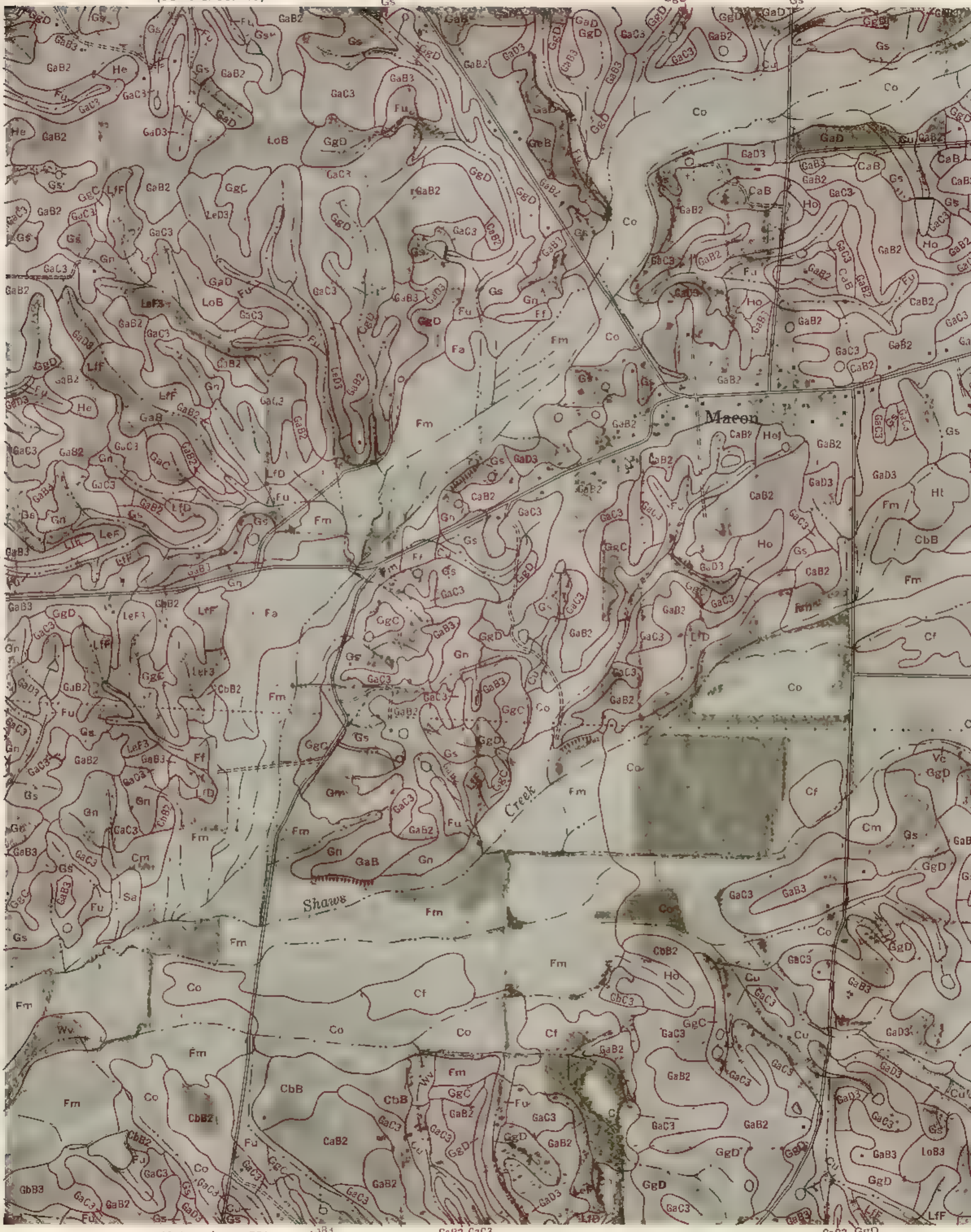
0 5000 Feet

(Joins sheet 58)

52

(Joins sheet 45)

N



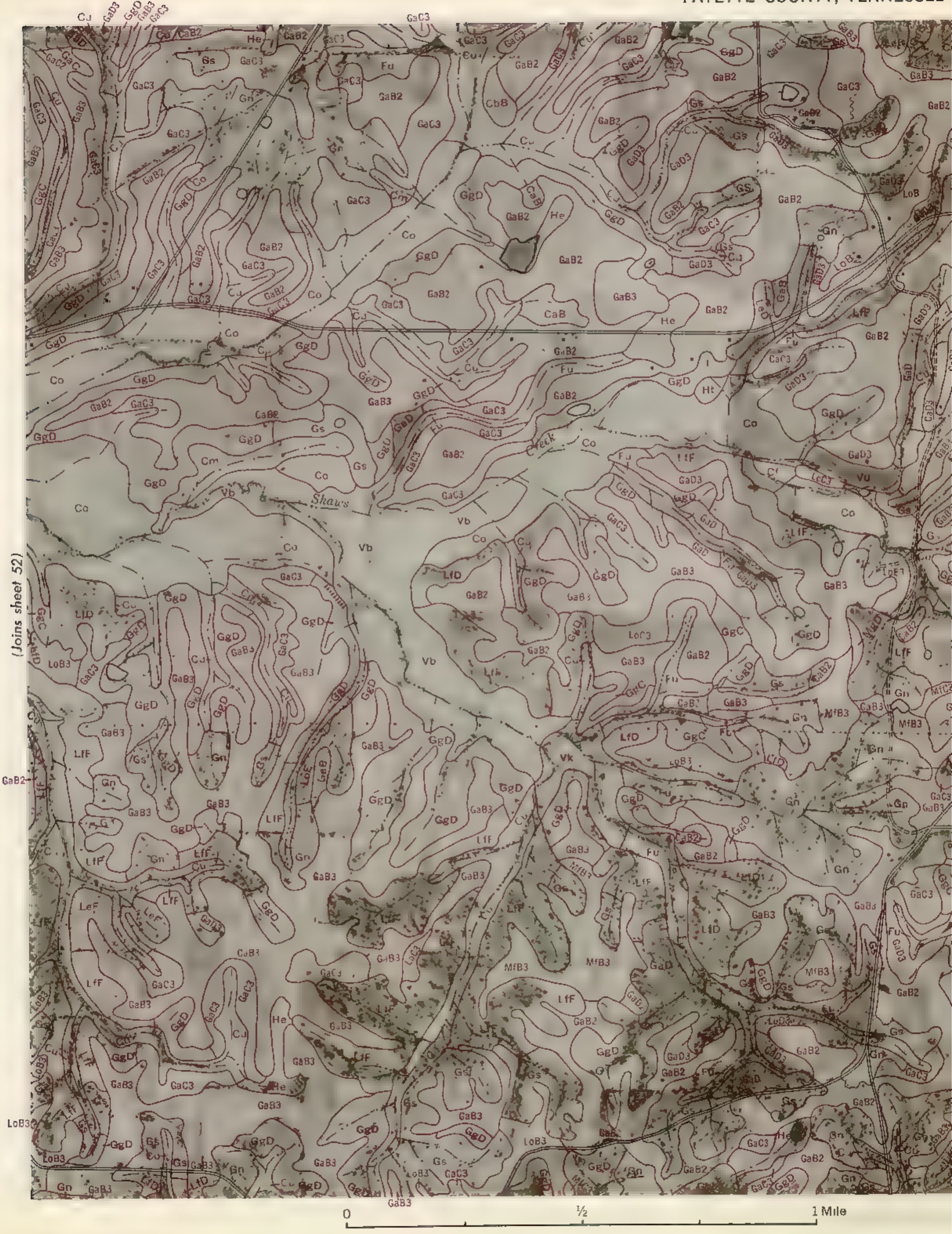
(Joins sheet 51)

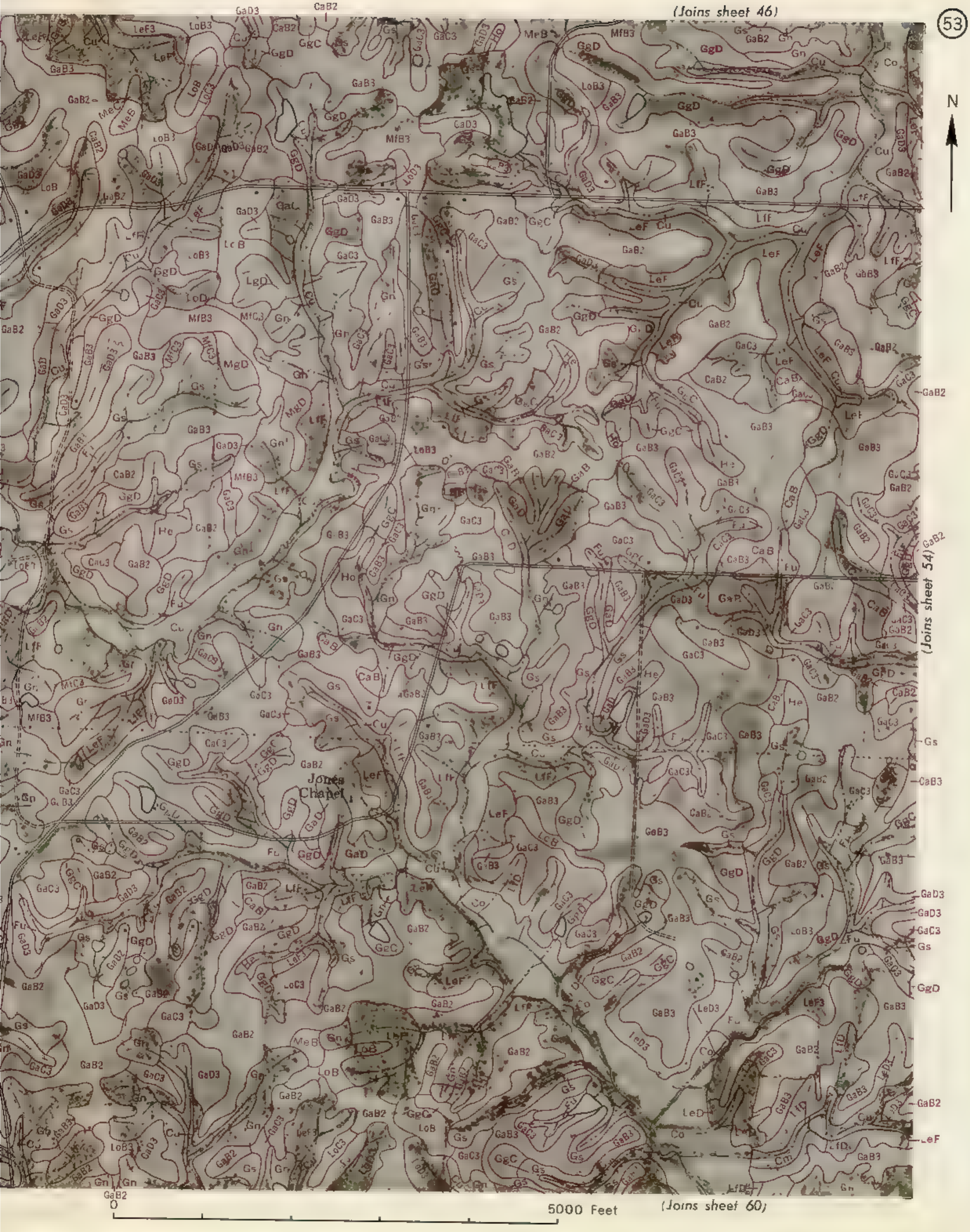
(Joins sheet 59)

0 ½ 1 Mile

(Joins sheet 53)

0 5000 Feet


(Joins sheet 52)
Shaws
Creek
0
½
1 Mile

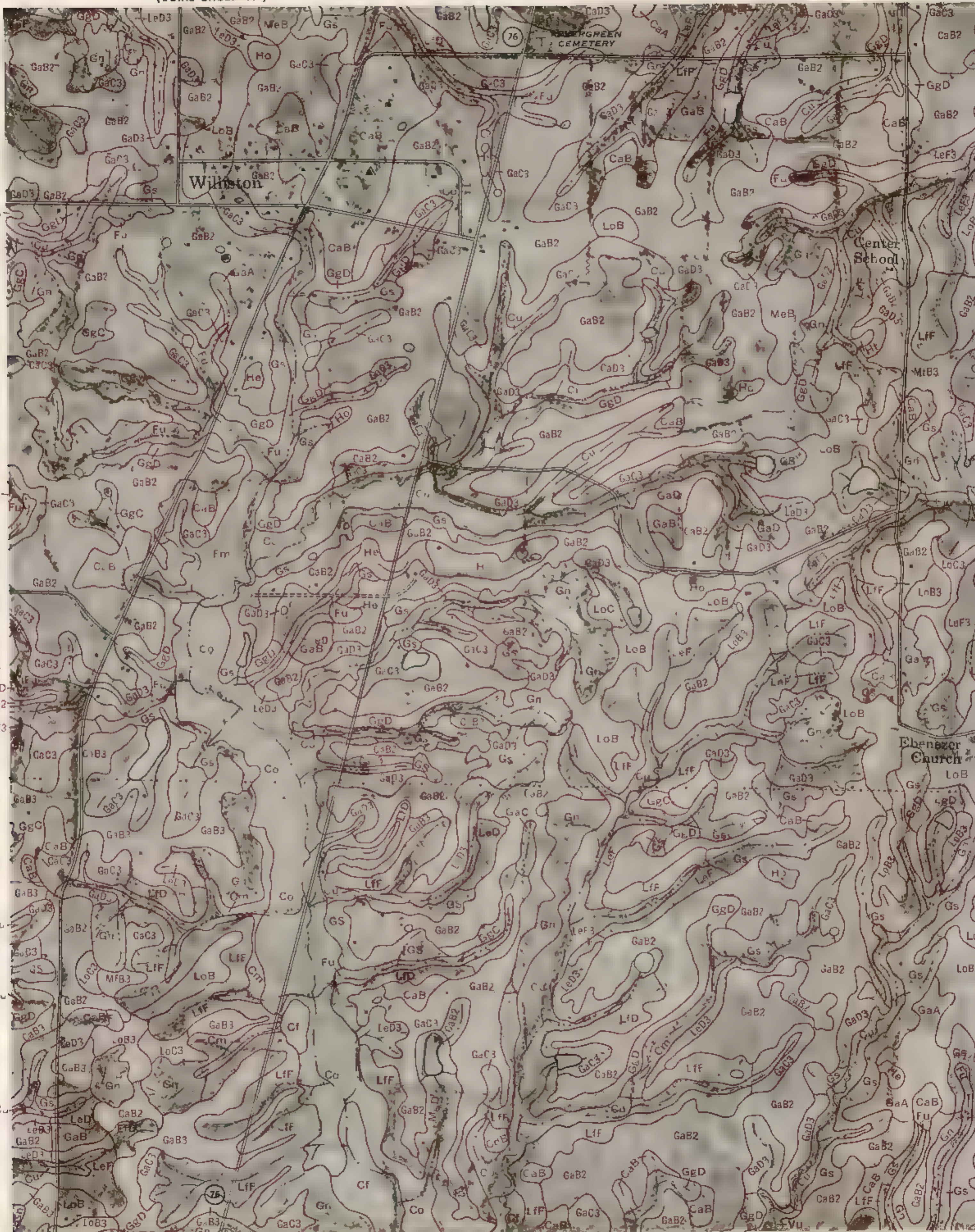

(Joins sheet 46)
53
N
(Joins sheet 54)
(Joins sheet 60)
Jones Chapel
0
5000 Feet

54

(Joins Sheet 47)

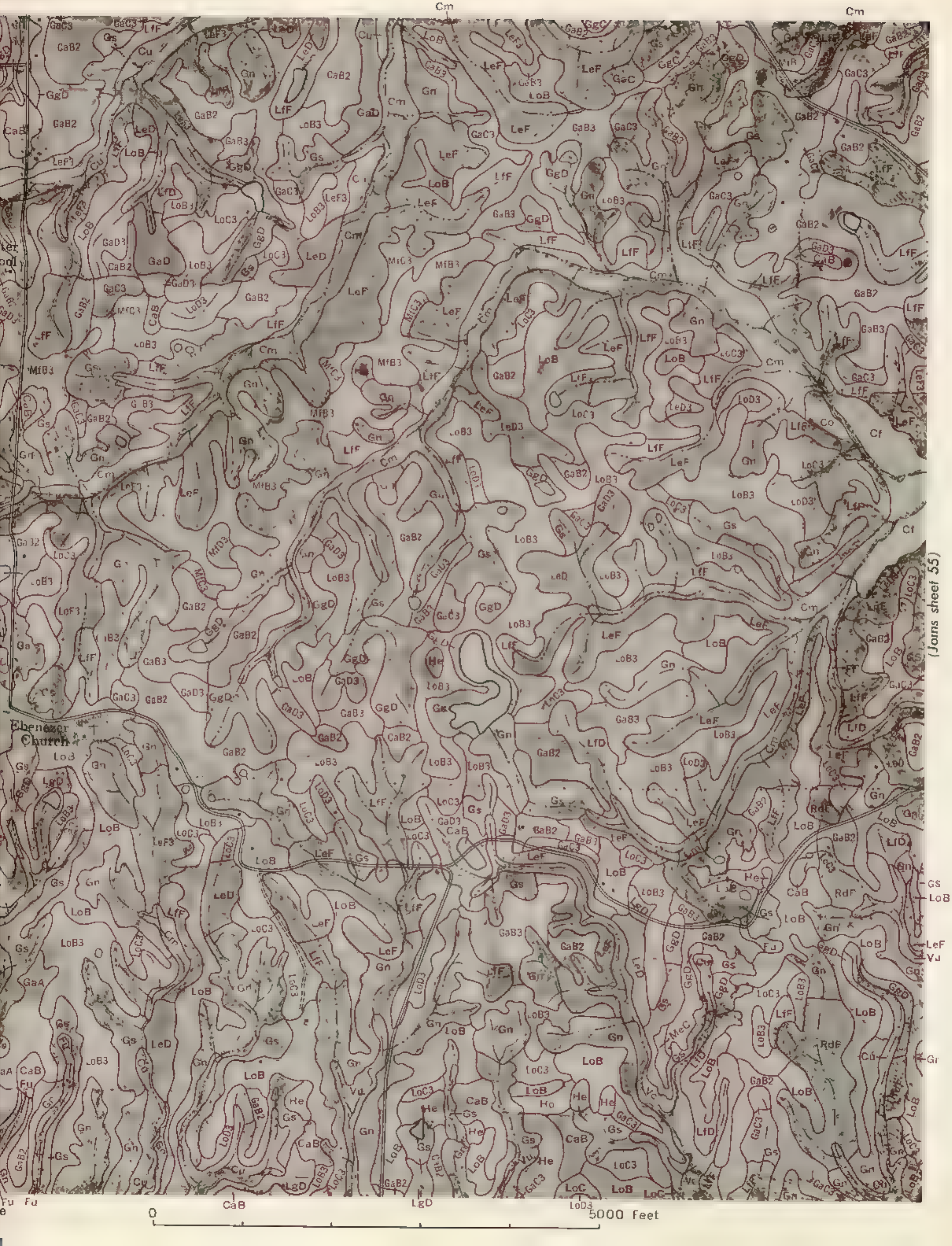
N

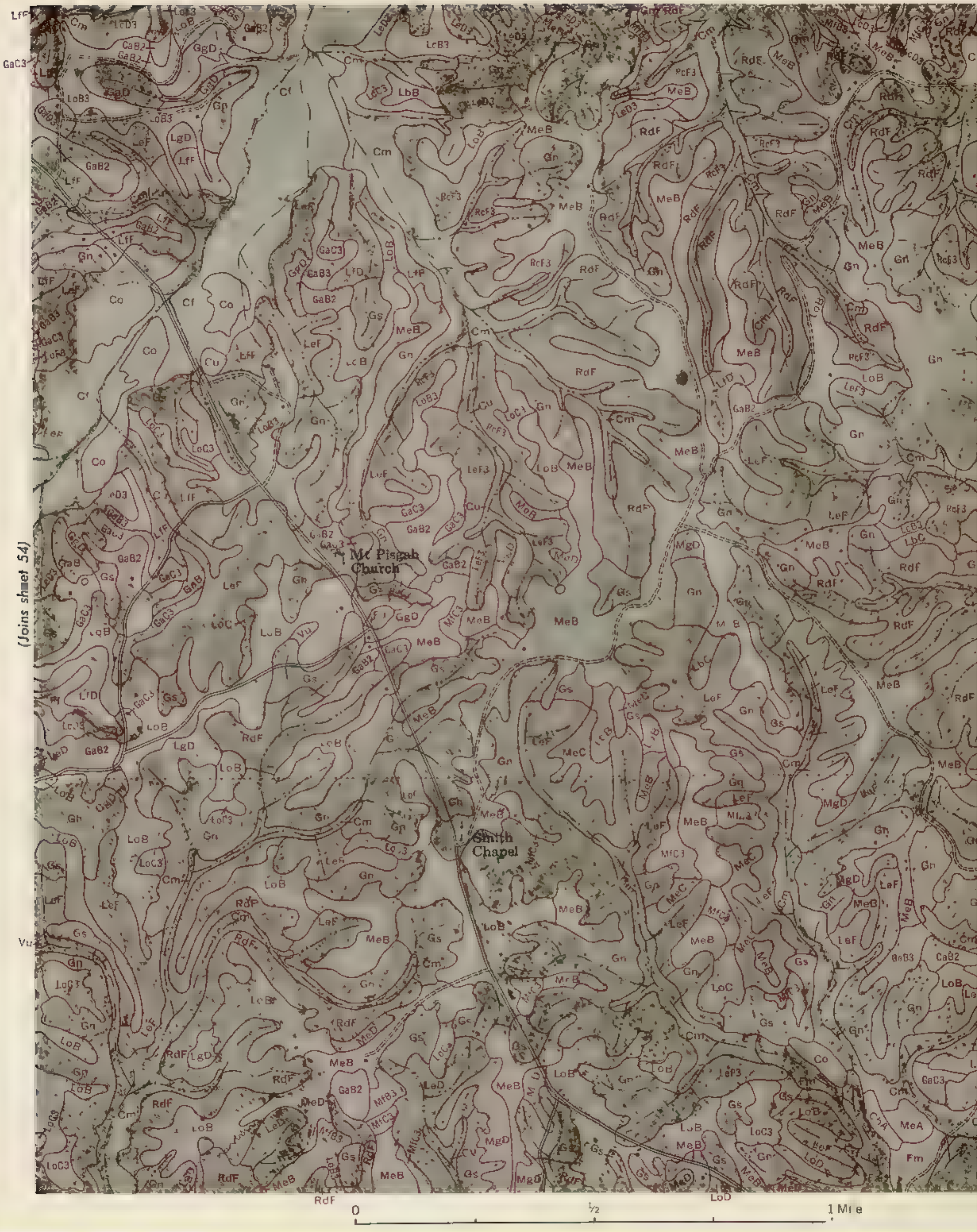
(Joins sheet 53)

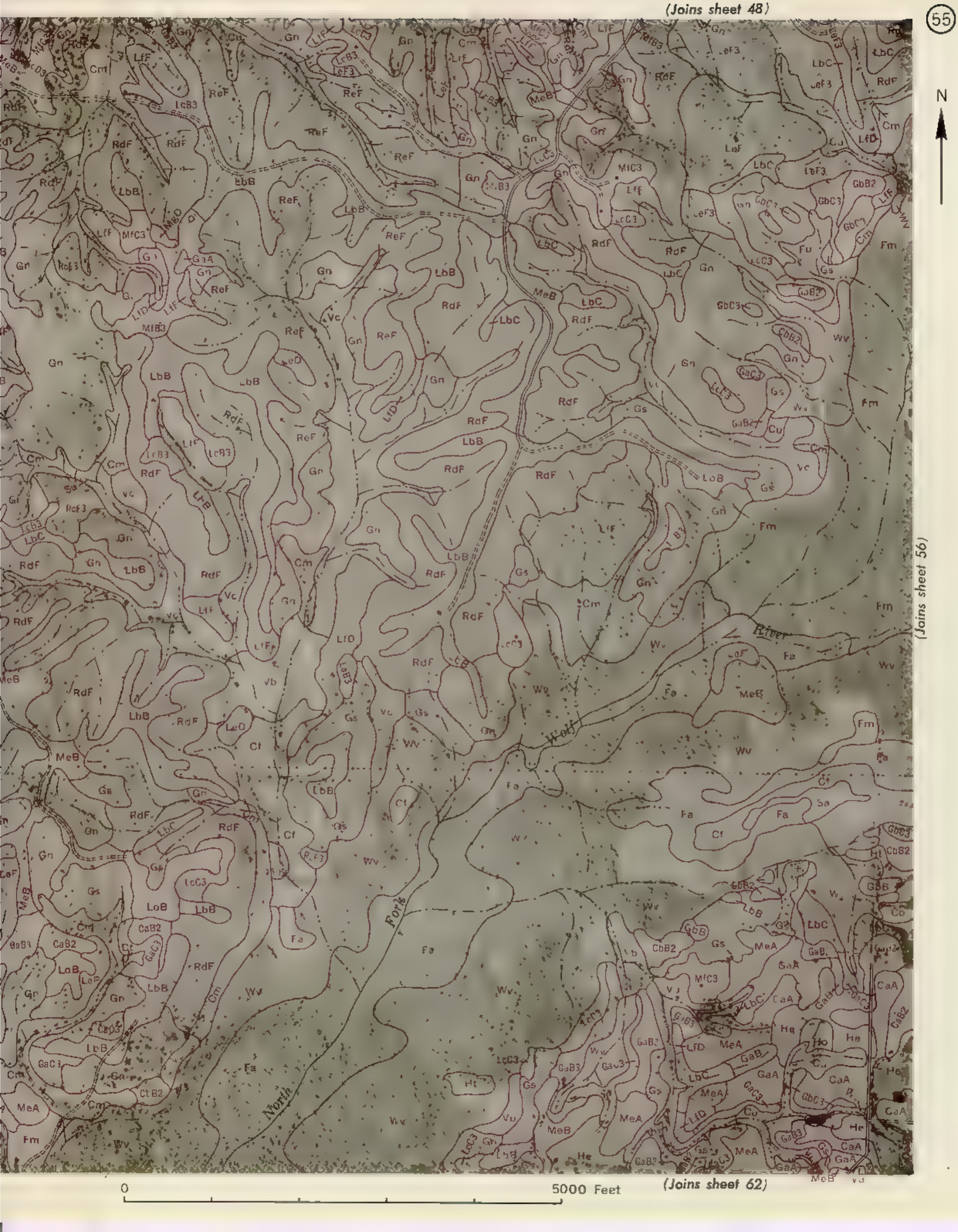


(Joins sheet 61)

0 ½ 1 Mile


Ebenezer Church
(Joins sheet 55)
0
5000 Feet


Mt Pisgah Church
Smith Chapel
(Joins sheet 54)
0
½
1 Mile


(Joins sheet 48)
55
N
(Joins sheet 56)
(Joins sheet 62)
Wolf
River
North
Fork
0
5000 Feet

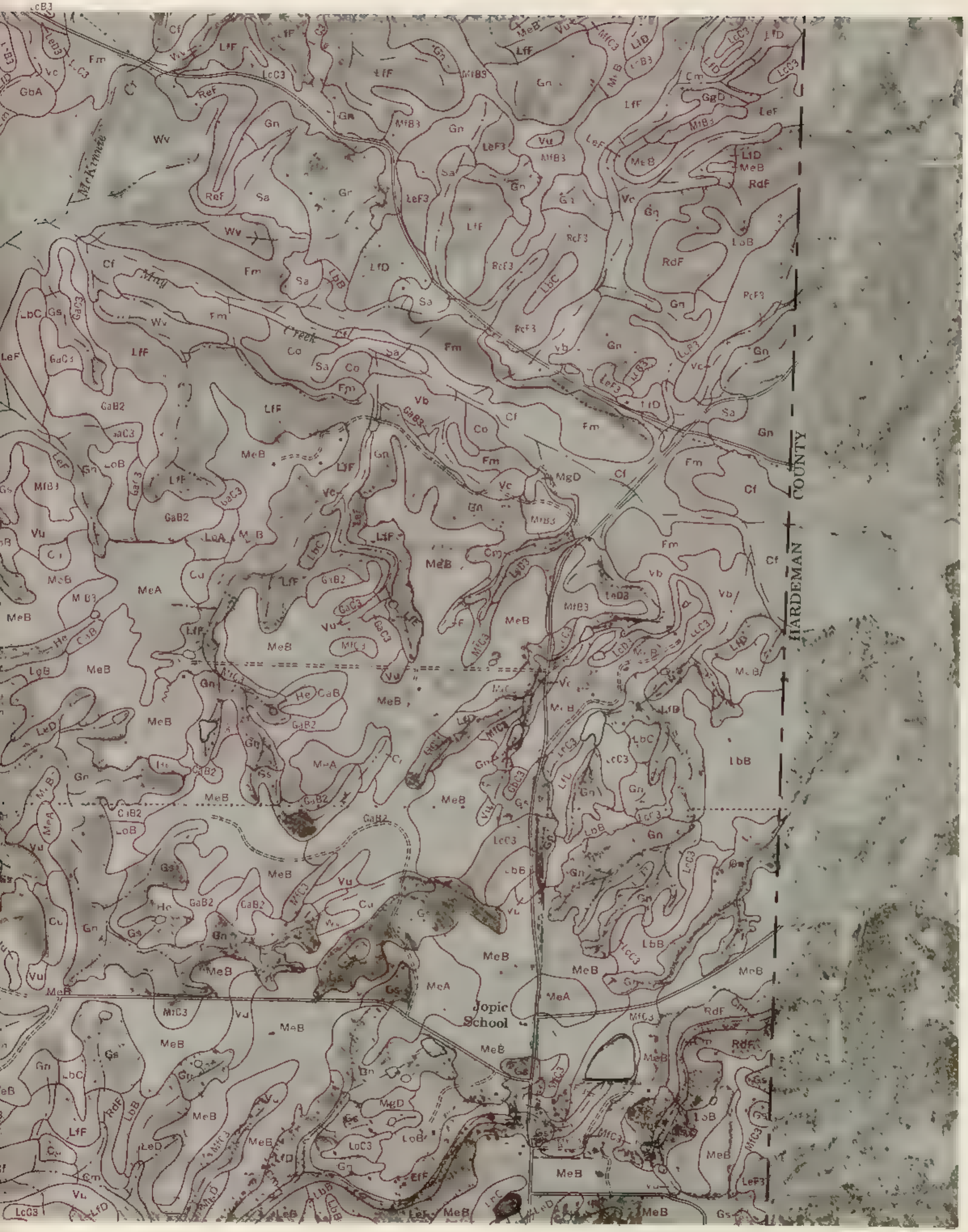
56

(Joins Sheet 49)

(Joins sheet 55)

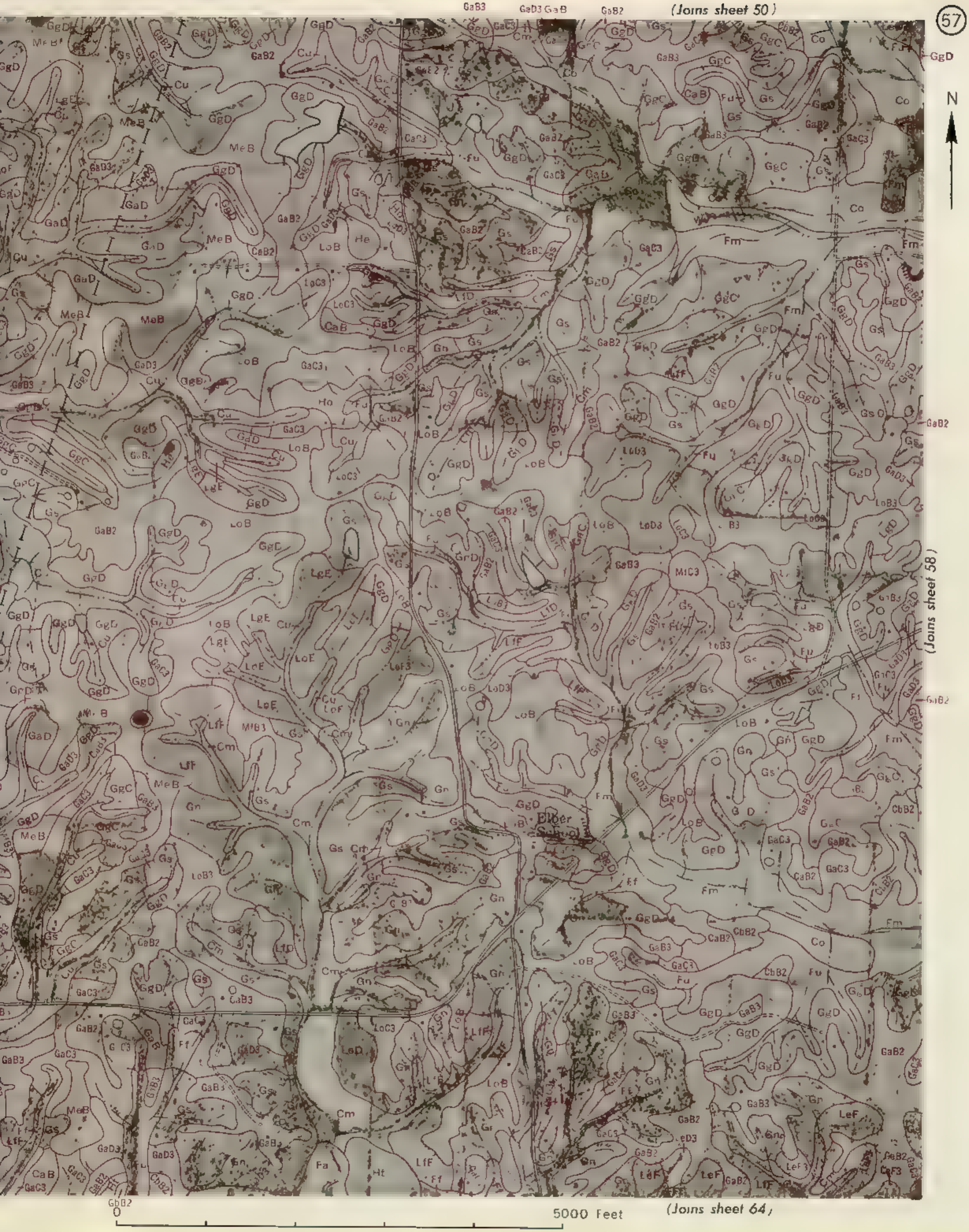
(Joins sheet 63)

0 ½ 1 Mile



Mile 0 5000 Feet

0 ½ 1 Mile

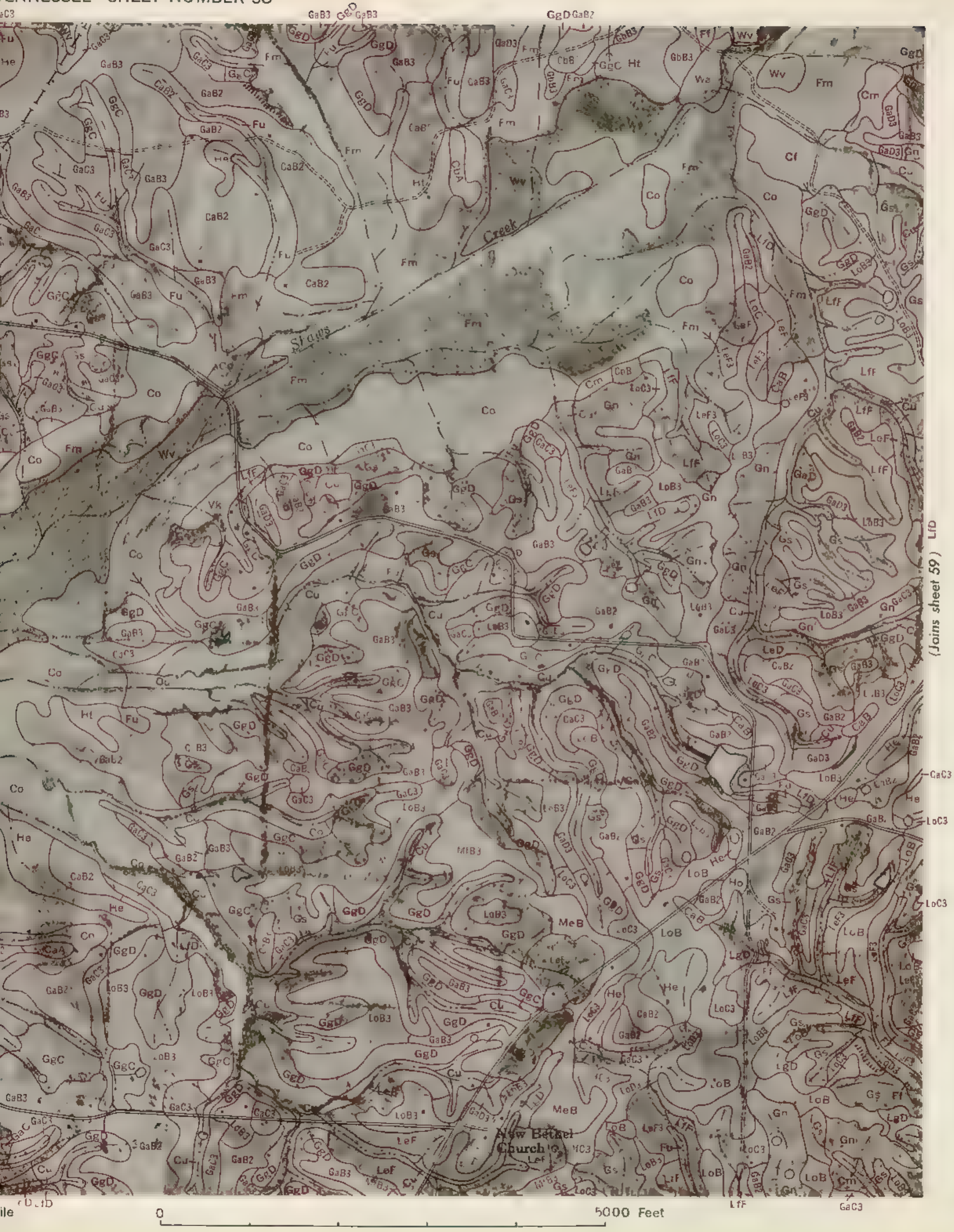

57
(Joins sheet 50)
(Joins sheet 58)
(Joins sheet 64)
N
Elber School
0
5000 Feet

(Joins sheet 51)

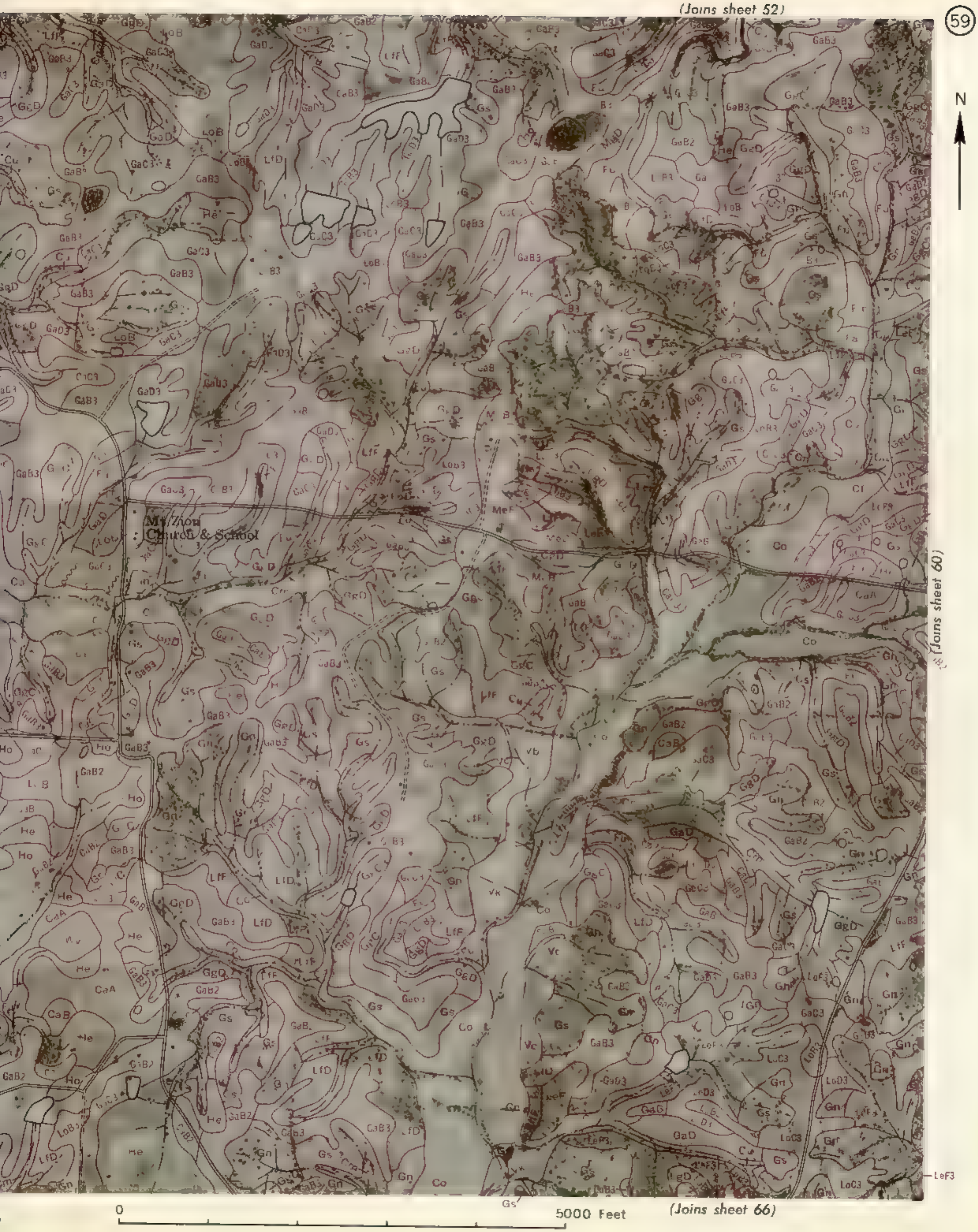
(Joins sheet 57)

(Joins sheet 65)

0 ½ 1 Mile


Shaws
Creek
New Bethel
Church
(Joins sheet 59)
0
5000 Feet


Pleasants Church
(Joins sheet 58)
Hurricane
0
1/2
1 Mile


(Joins sheet 52)
59
N
Mt. Zion Church & School
(Joins sheet 60)
0
5000 Feet
(Joins sheet 66)

(Joins sheet 53)

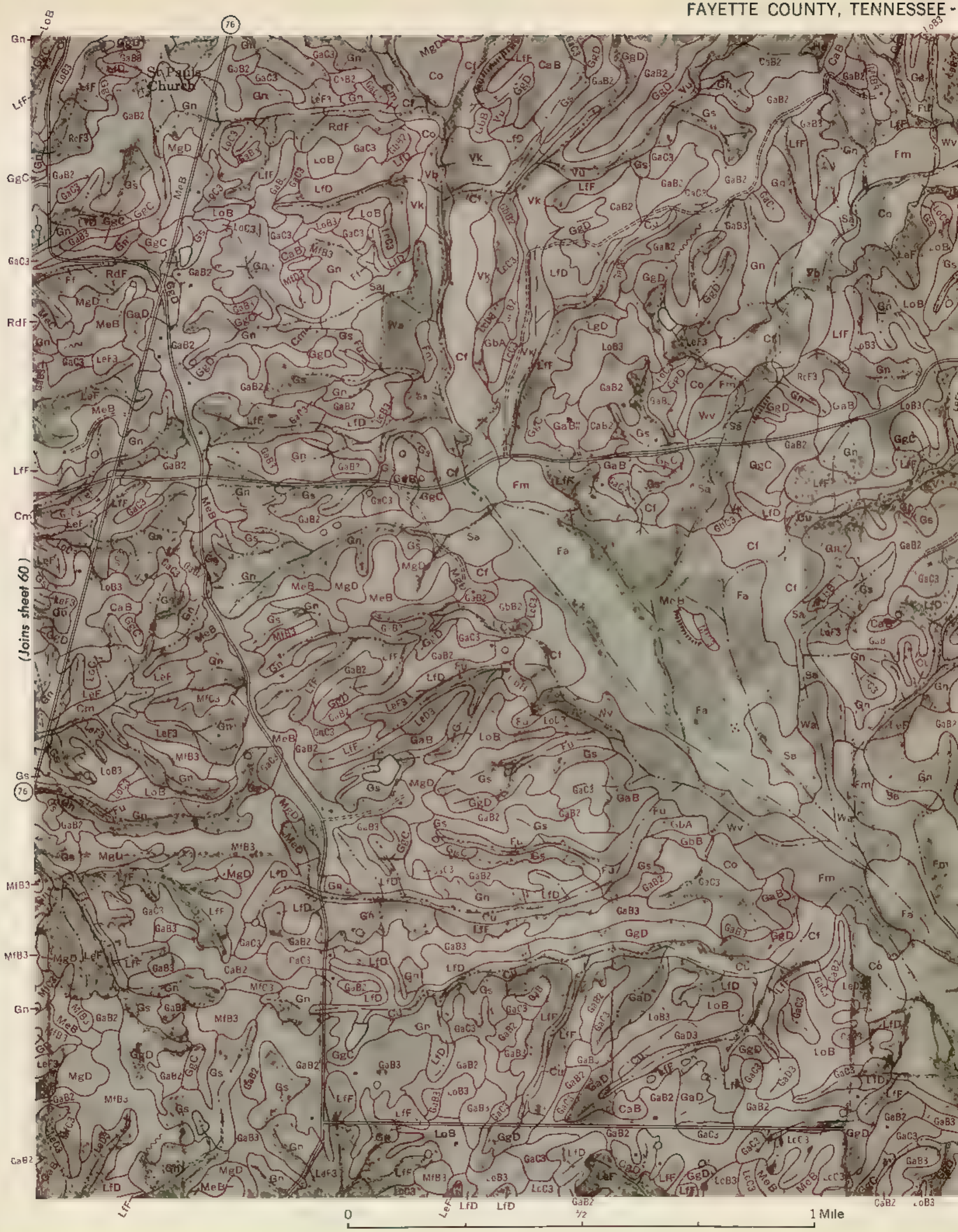
N

(Joins sheet 59)

(Joins sheet 67)

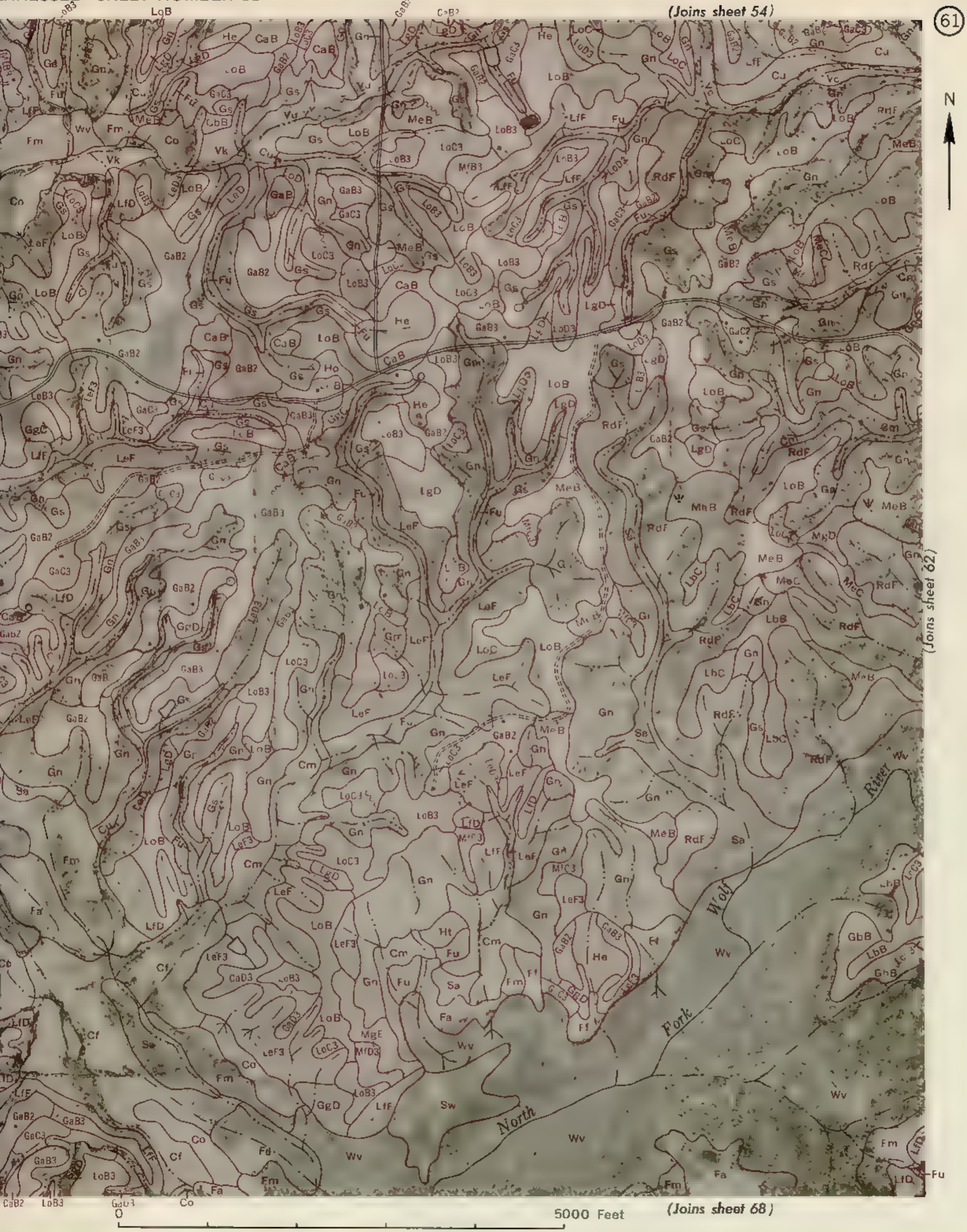
0 ½ 1 Mile


(Joins sheet 61)
Creek
Stafford
Harris Creek
0
5000 Feet
75


St. Pauls Church
(Joins sheet 60)
76
0
1/2
1 Mile

(Joins sheet 54)

61

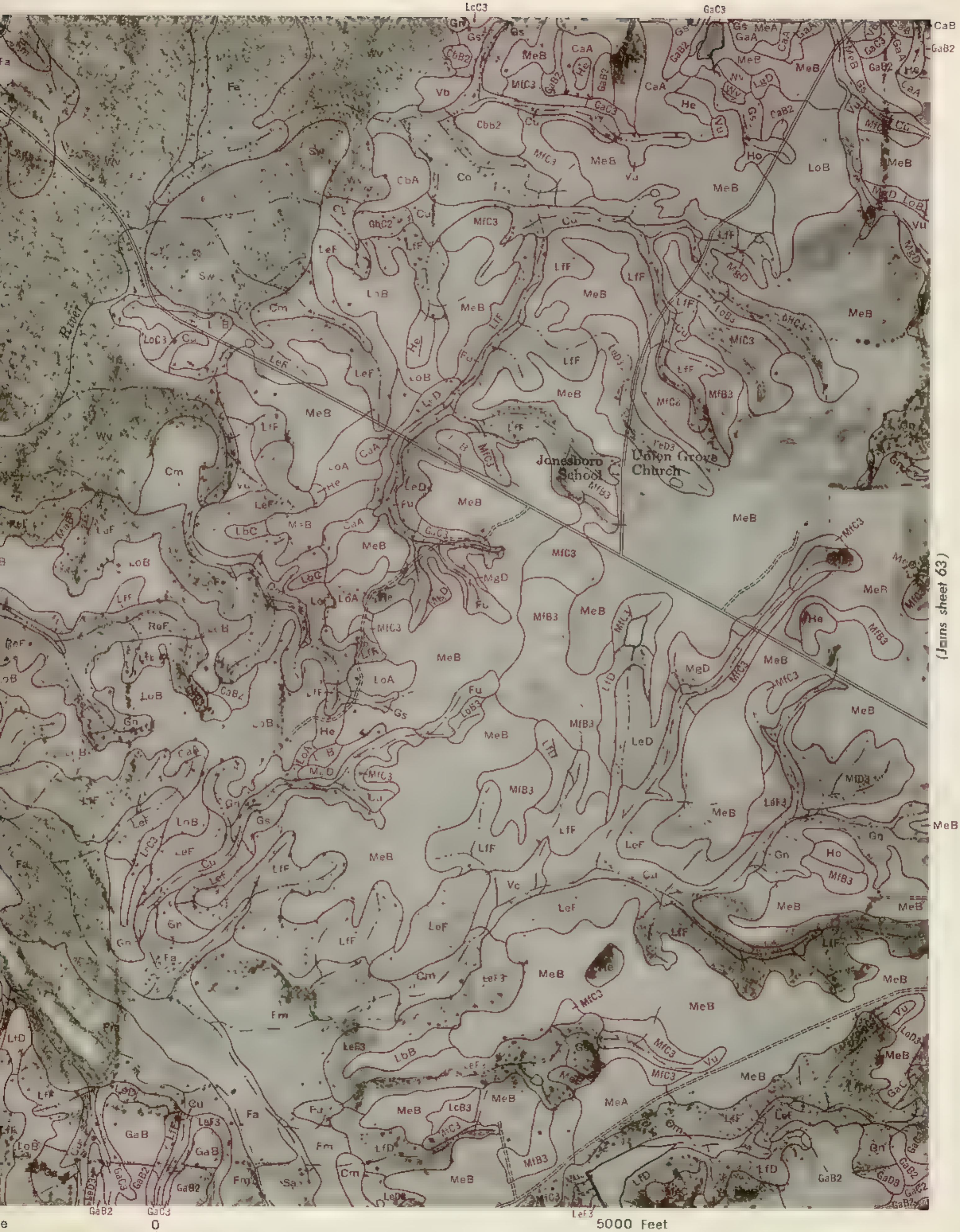


(Joins sheet 68)

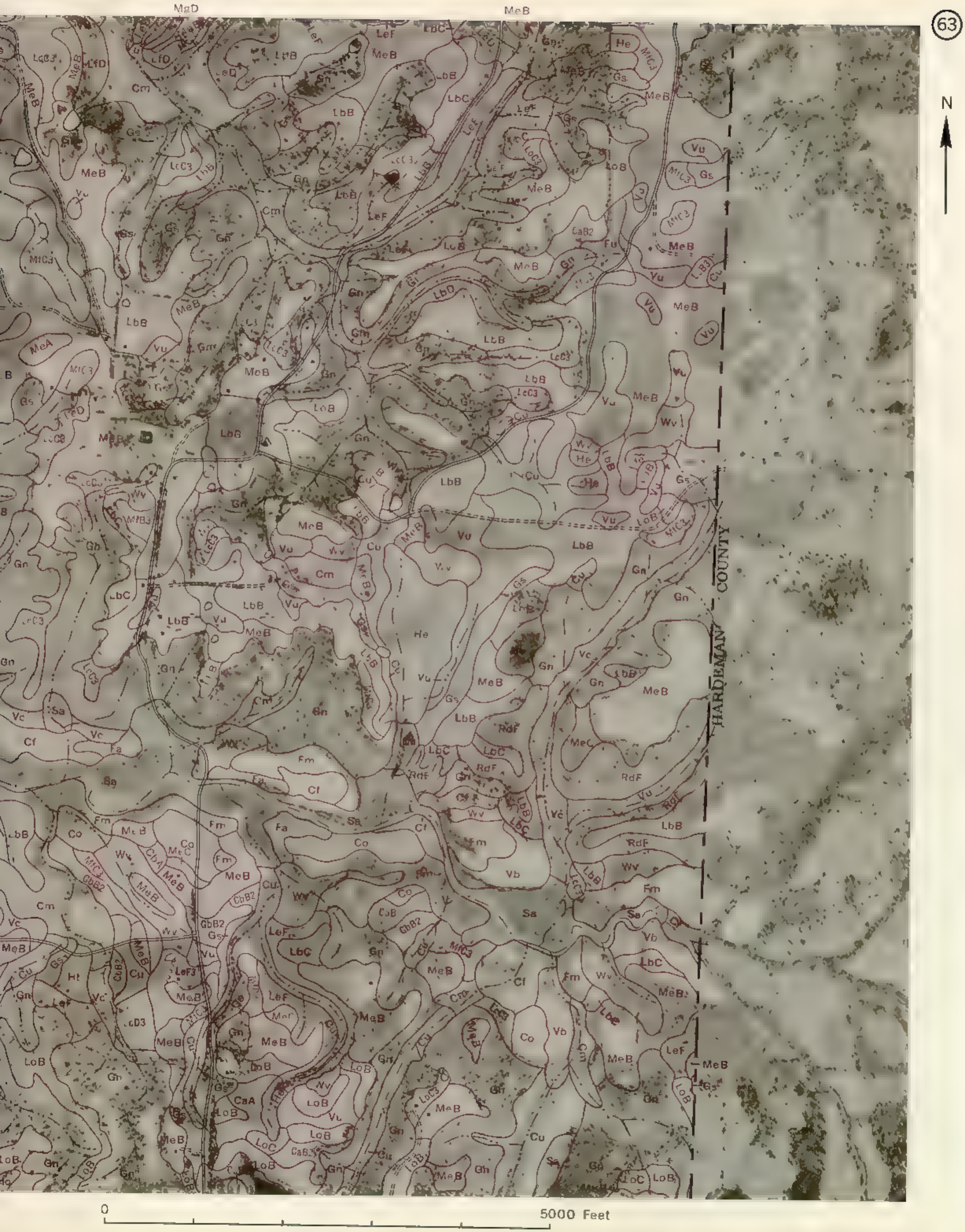
(Joins sheet 55)

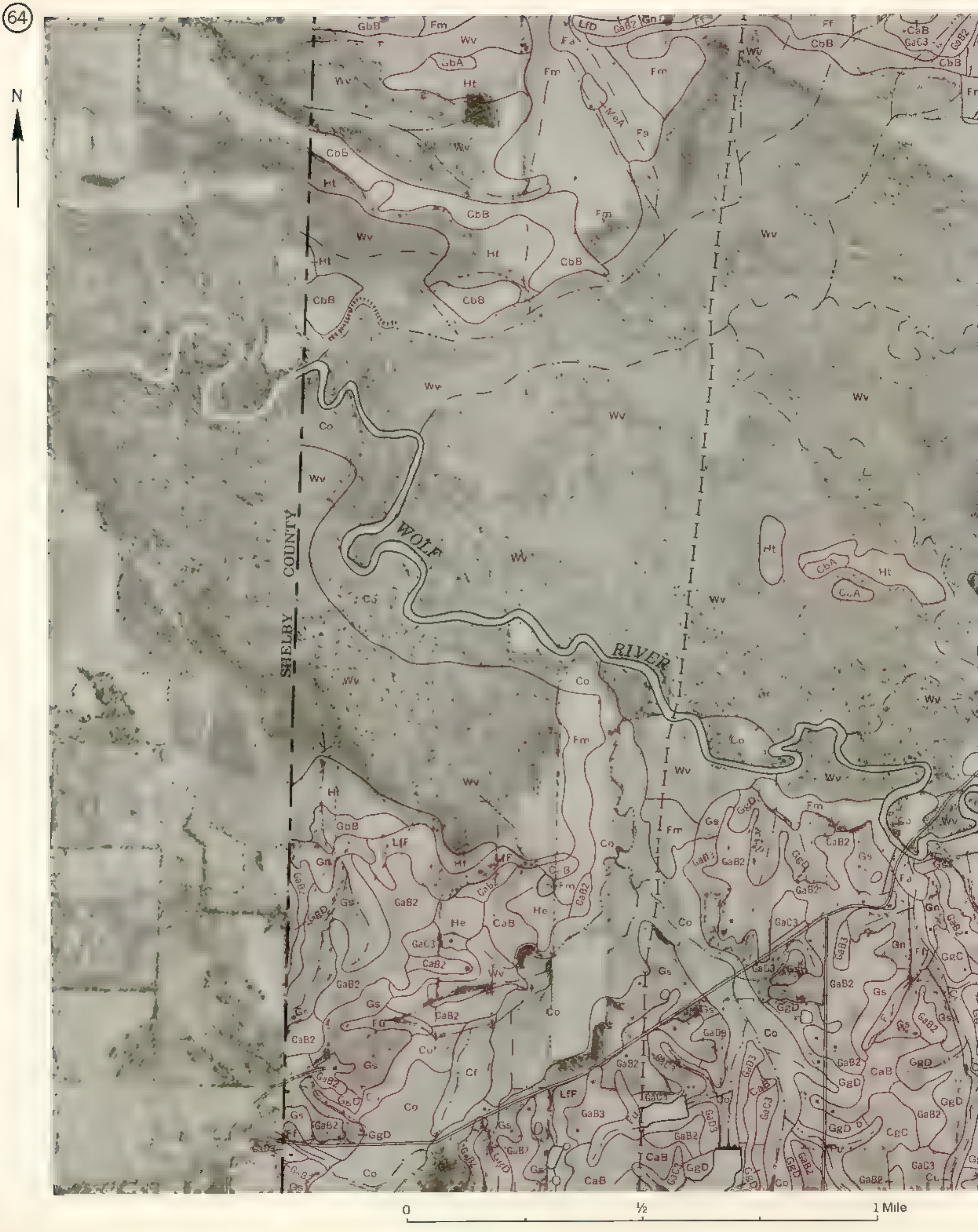
(Joins sheet 69)

0 ½ 1 Mile


Jonesboro School
Union Grove Church
River
(Joins sheet 63)
0
5000 Feet


(Joins sheet 56)
(Joins sheet 62)
(Joins sheet 70)
North Fork Creek
0
½
1 Mile

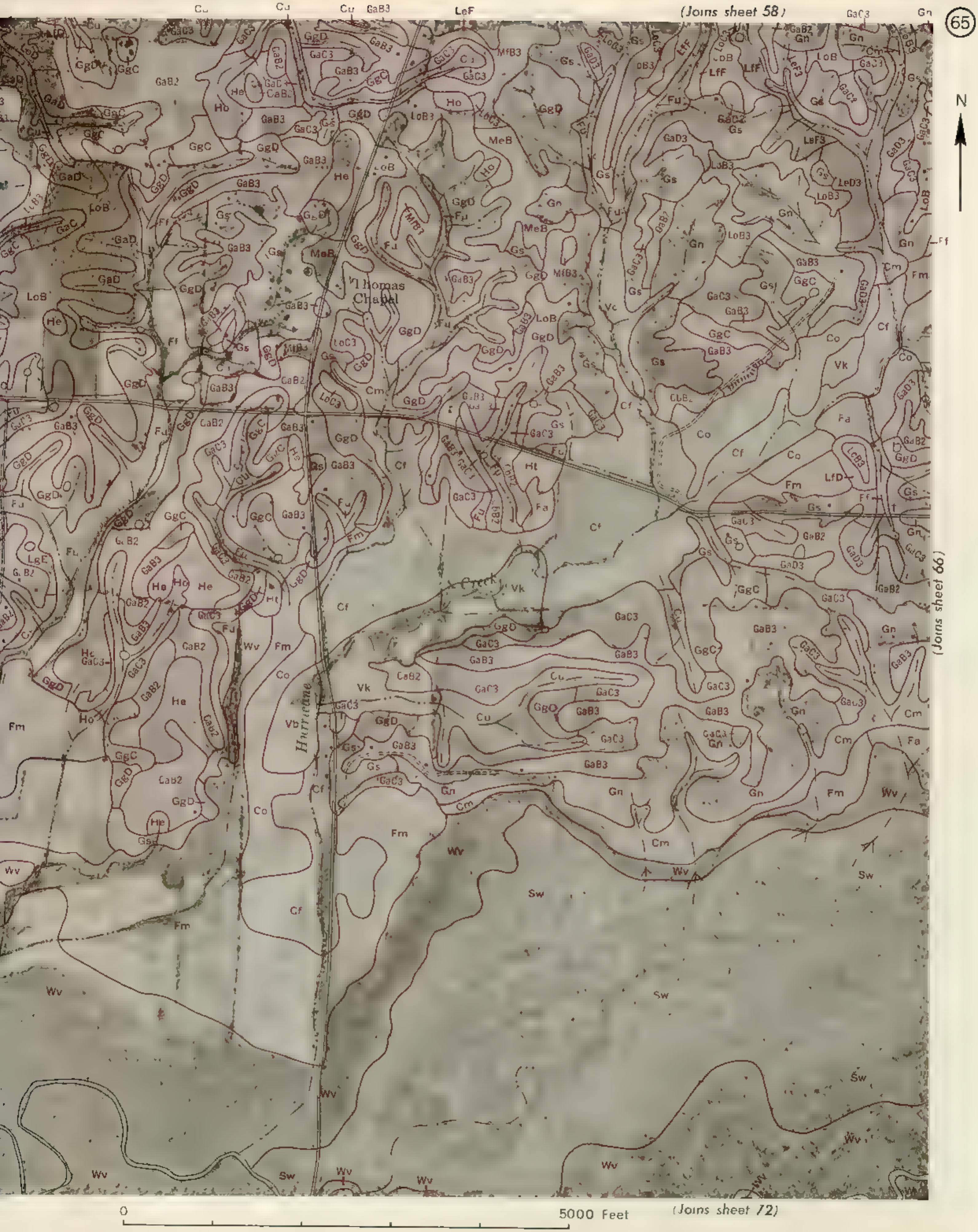

N
HARDEMAN COUNTY
0
5000 Feet

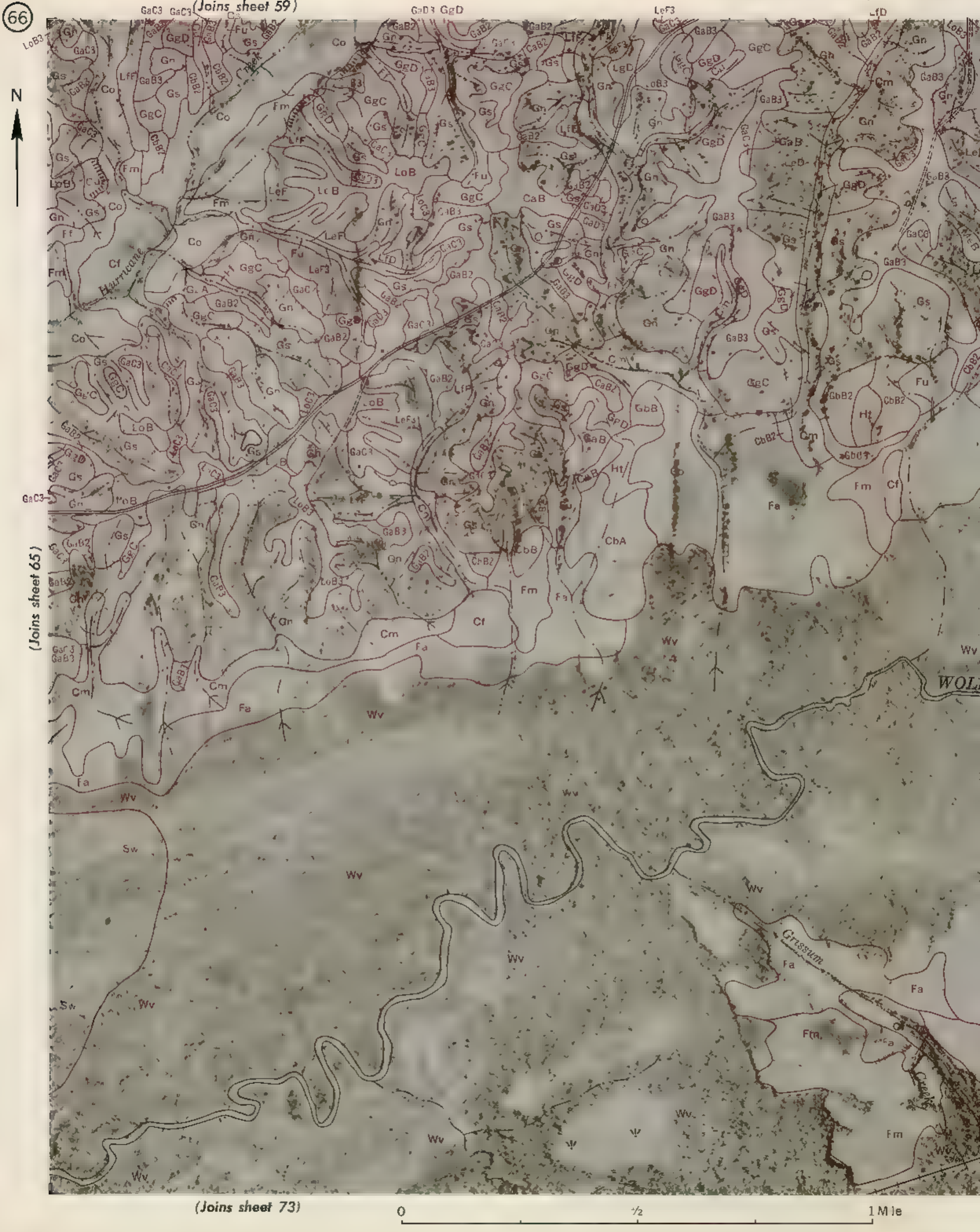

N
SHELBY COUNTY
WOLF
RIVER
0
½
1 Mile

(Joins Sheet 57)

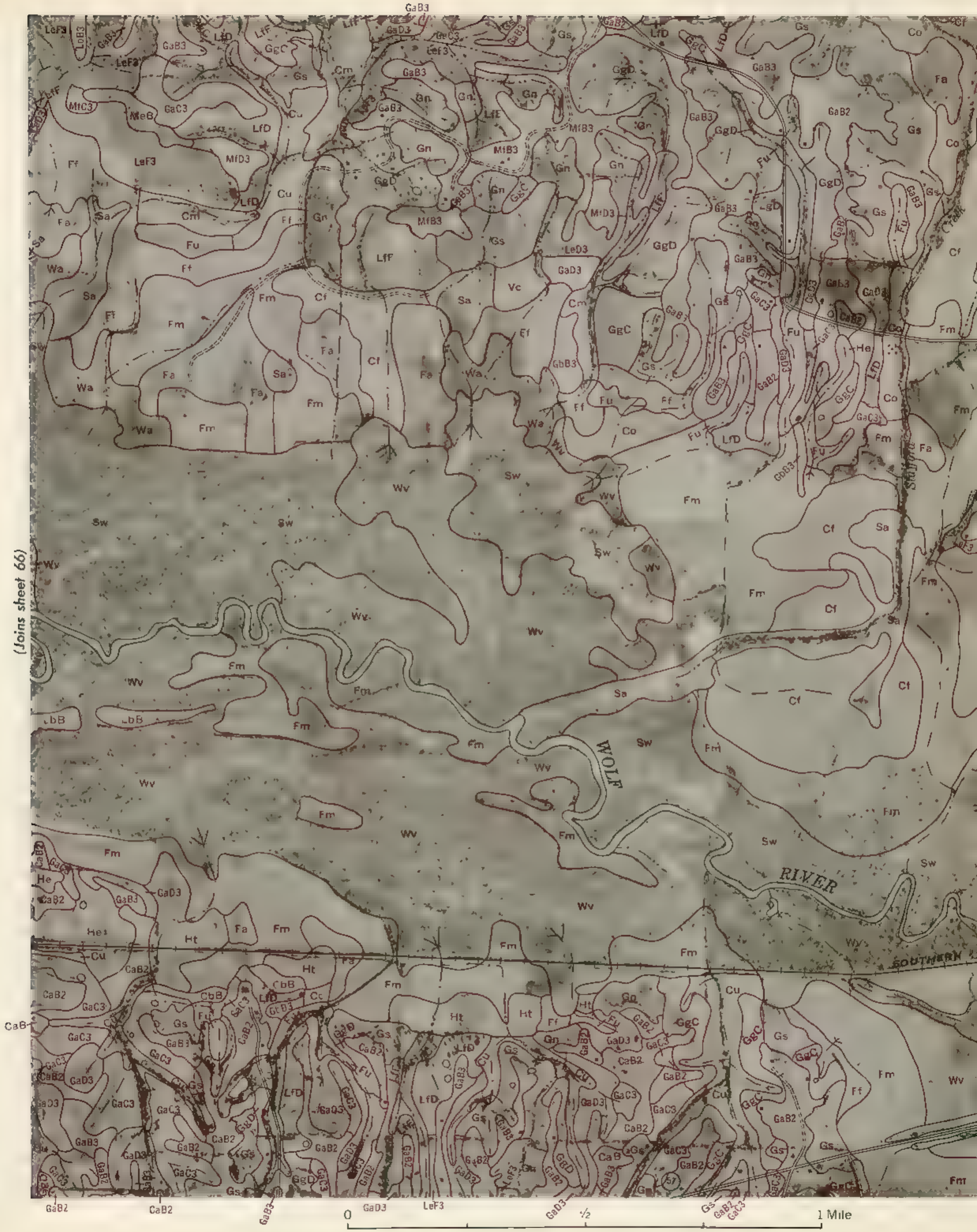
(Joins sheet 71)

(Joins sheet 64)


(Joins sheet 58)
65
N
Thomas Chapel
Hurricane
Creek
(Joins sheet 66)
0
5000 Feet
(Joins sheet 72)


66
(Joins sheet 59)
N
(Joins sheet 65)
(Joins sheet 73)
Hurricane
Grissum
Creek
0
½
1 Mile
GaC3
GaB2
GaB3
GgD
GgC
Gn
Gs
Co
Cf
Cm
Fm
Fa
Fu
LoB
LeF
LeF3
CaB
CbA
CbB2
GbB
Ht
Wv
Sw


WOLF
RIVER
SOUTHERN
Hays Crossing
(Joins sheet 67)
0
5000 Feet


(Joins sheet 66)
WOLF
RIVER
Creek
SOUTHERN
0
1/2
1 Mile

(Joins sheet 60)
67
N
(Joins sheet 68)
(Joins sheet 74)
Spring Hill Church
MOSCOW
Wolf River
North Fork
SOUTHERN
0
5000 Feet

68

(Joins sheet 61)

(Joins sheet 67)

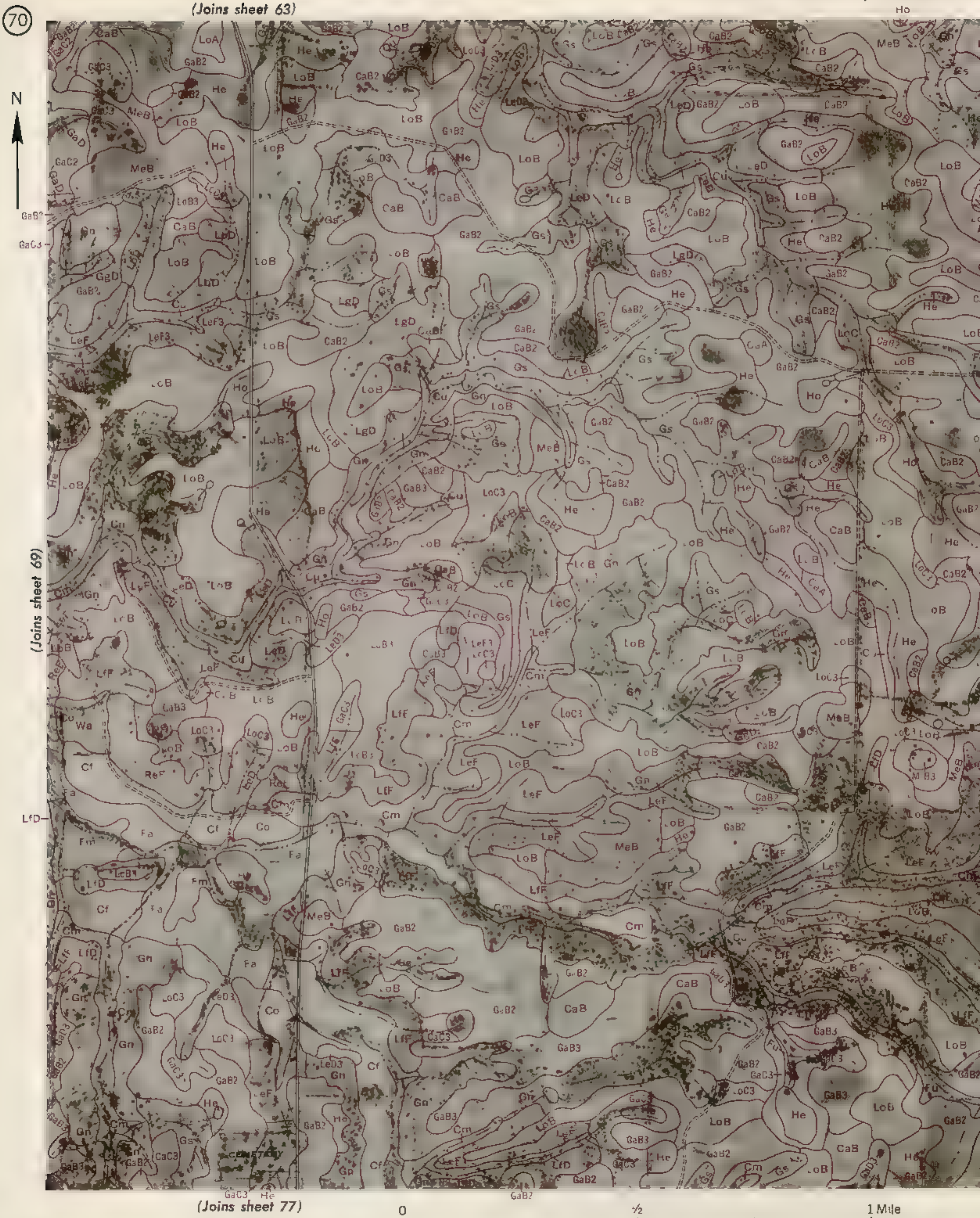
(Joins sheet 75)

0 ½ 1 Mile

ENNESSEE - SHEET NUMBER 68


(Joins sheet 68)
Anderson Grove School
Forty-Five Church
SOUTHERN
57
0
1/2
1 Mile

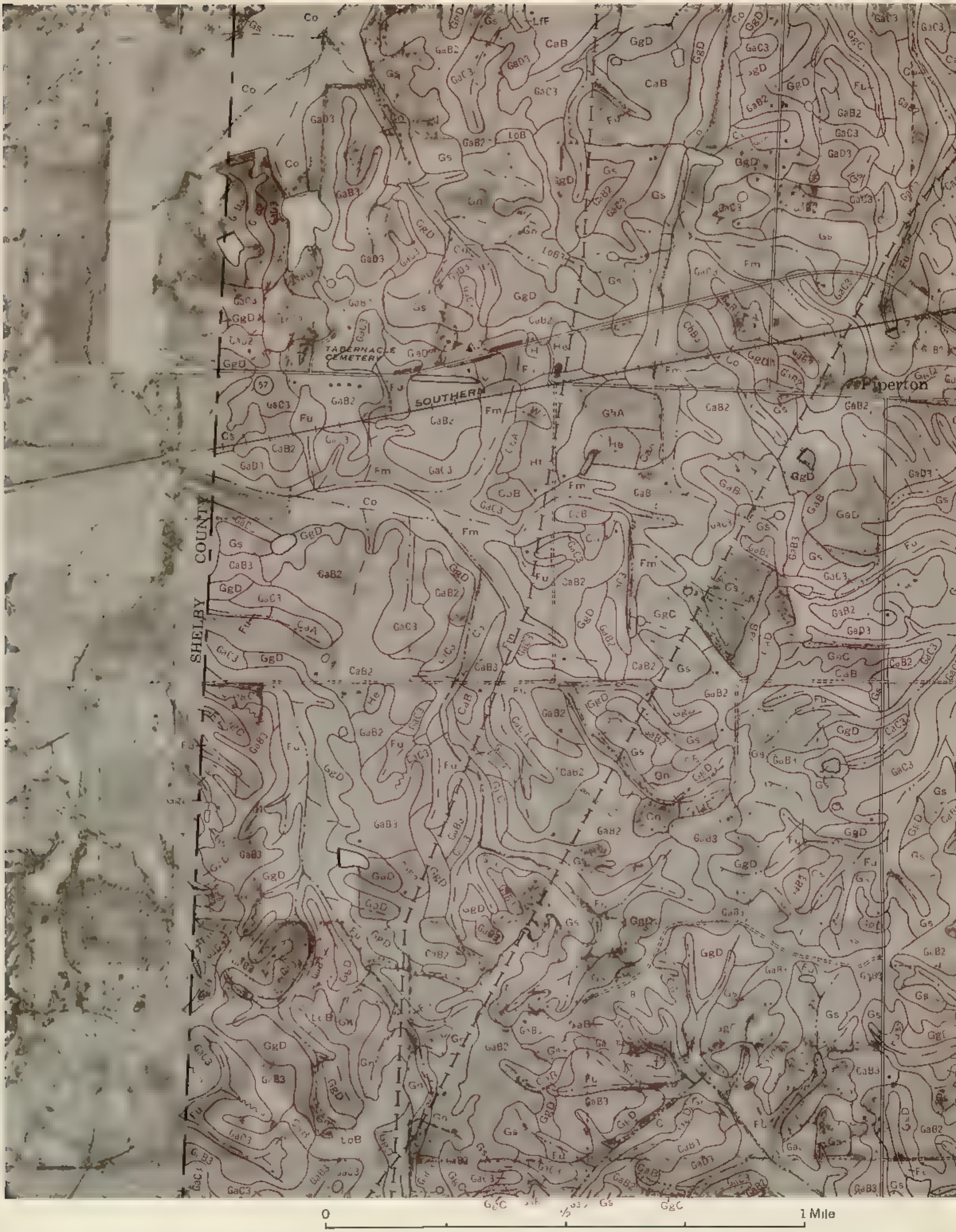

(Joins sheet 62)
69
N
(Joins sheet 70)
(Joins Sheet 76)
Beasley
Creek
SOUTHERN
rson Grove
57
0
5000 Feet


70
(Joins sheet 63)
(Joins sheet 69)
(Joins sheet 77)
N
0
½
1 Mile

Y, TENNESSEE - SHEET NUMBER 70

1 Mile

0 5000 Feet


SHELBY COUNTY
TABERNACLE CEMETERY
SOUTHERN
Piperton
57
0
½
1 Mile

(Joins sheet 64)

71

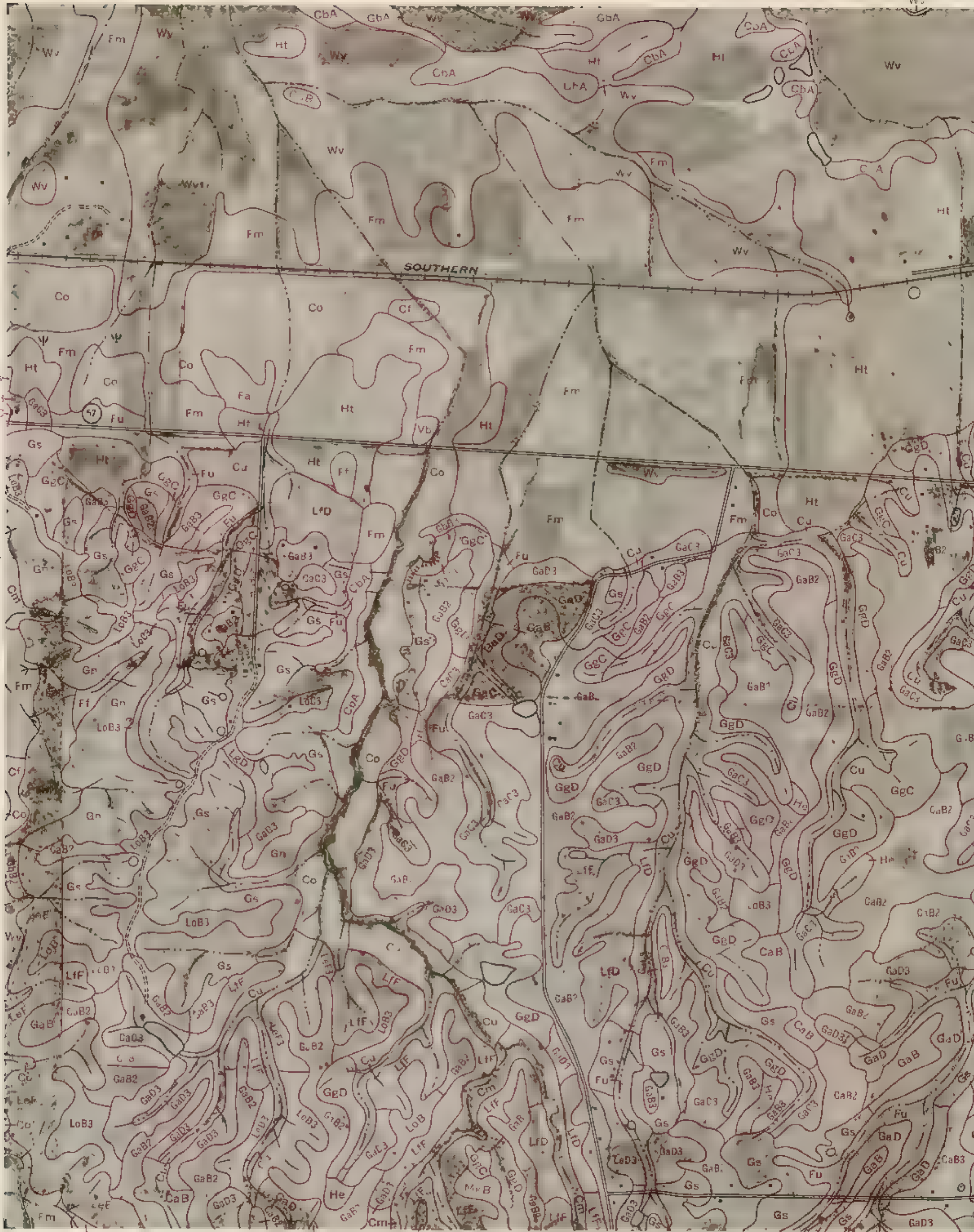
(Joins sheet 72)

0 5000 Feet

(Joins sheet 78)

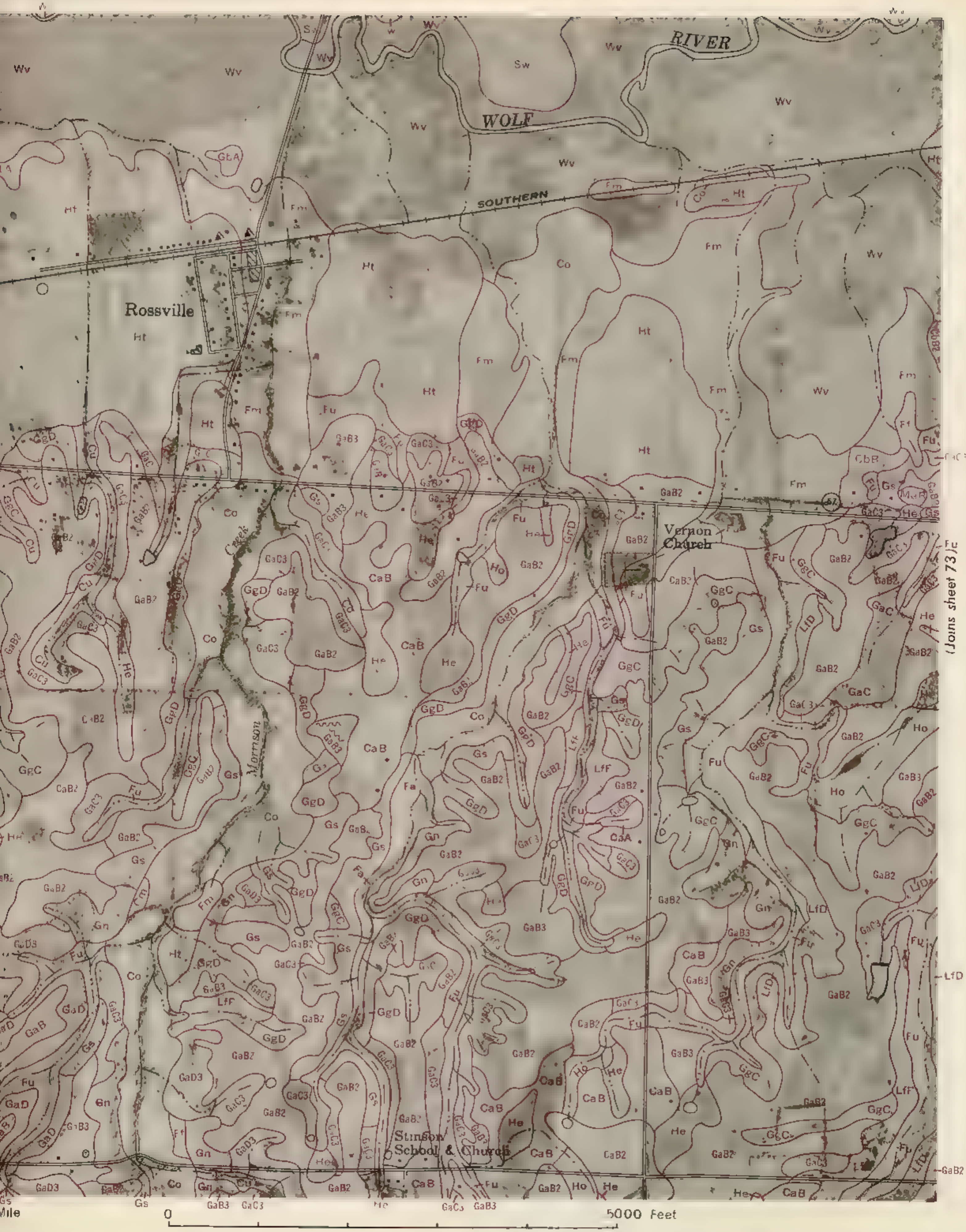
(Joins sheet 65)

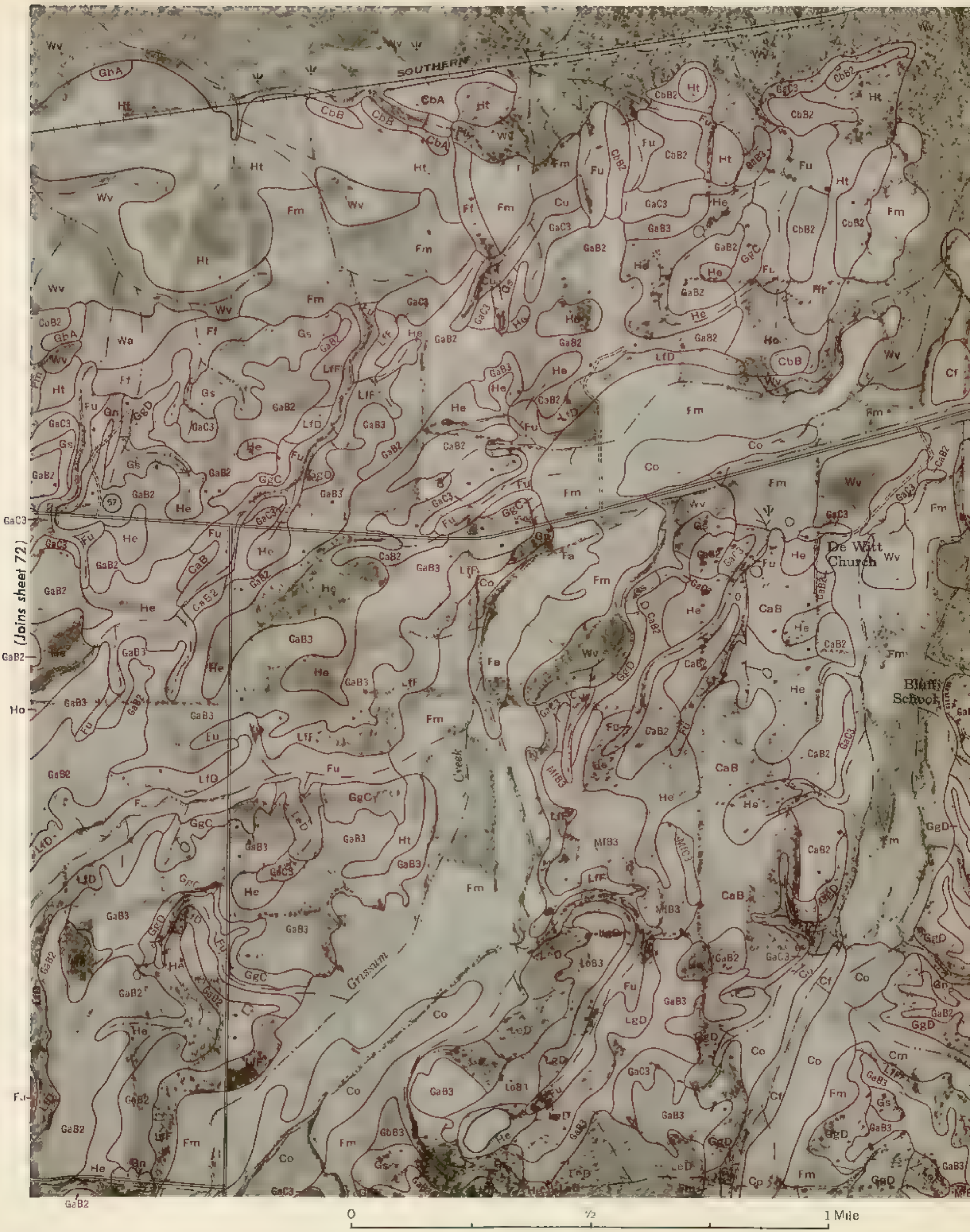
(Joins sheet 71)

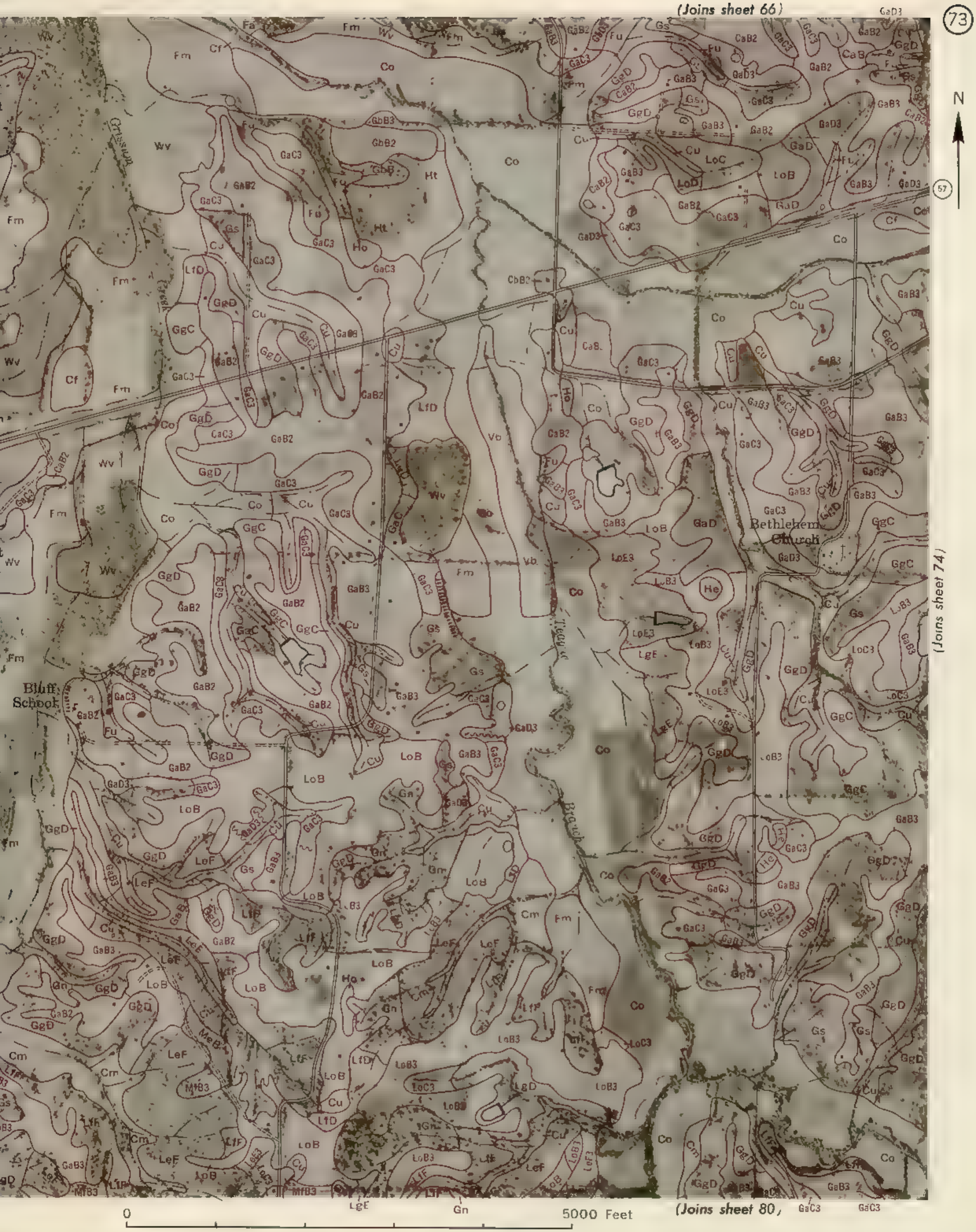


(Joins sheet 79)

0 ½ 1 Mile


WOLF
RIVER
SOUTHERN
Rossville
Vernon Church
Morrison Creek
Stinson School & Church
(Joins sheet 73)
0
5000 Feet


SOUTHERN
De Witt Church
Bluffy School
(Joins sheet 72)
Grissum
Creek
0
½
1 Mile


(Joins sheet 66)
73
N
57
Bethlehem Church
Bluff School
(Joins sheet 74)
(Joins sheet 80)
0
5000 Feet

74

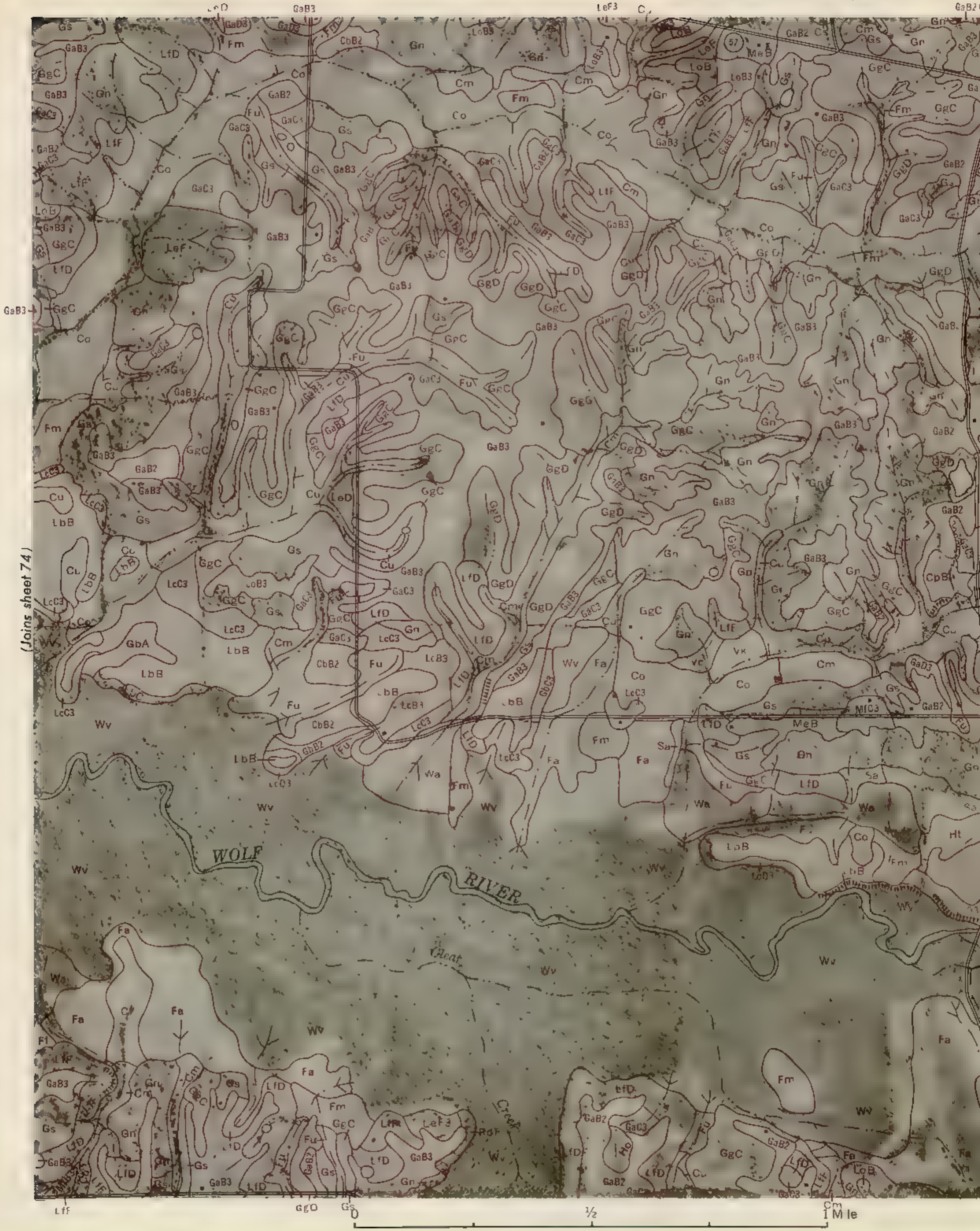
(Joins Sheet 67)

(Joins sheet 73)

(Joins Sheet 81)

0 ½ 1 Mile


Creek
WOLF
RIVER
(Joins Sheet 75)
0
5000 Feet


(Joins sheet 74)
WOLF
RIVER
Creek
0
½
1 Mile

ENNESSEE - SHEET NUMBER 75

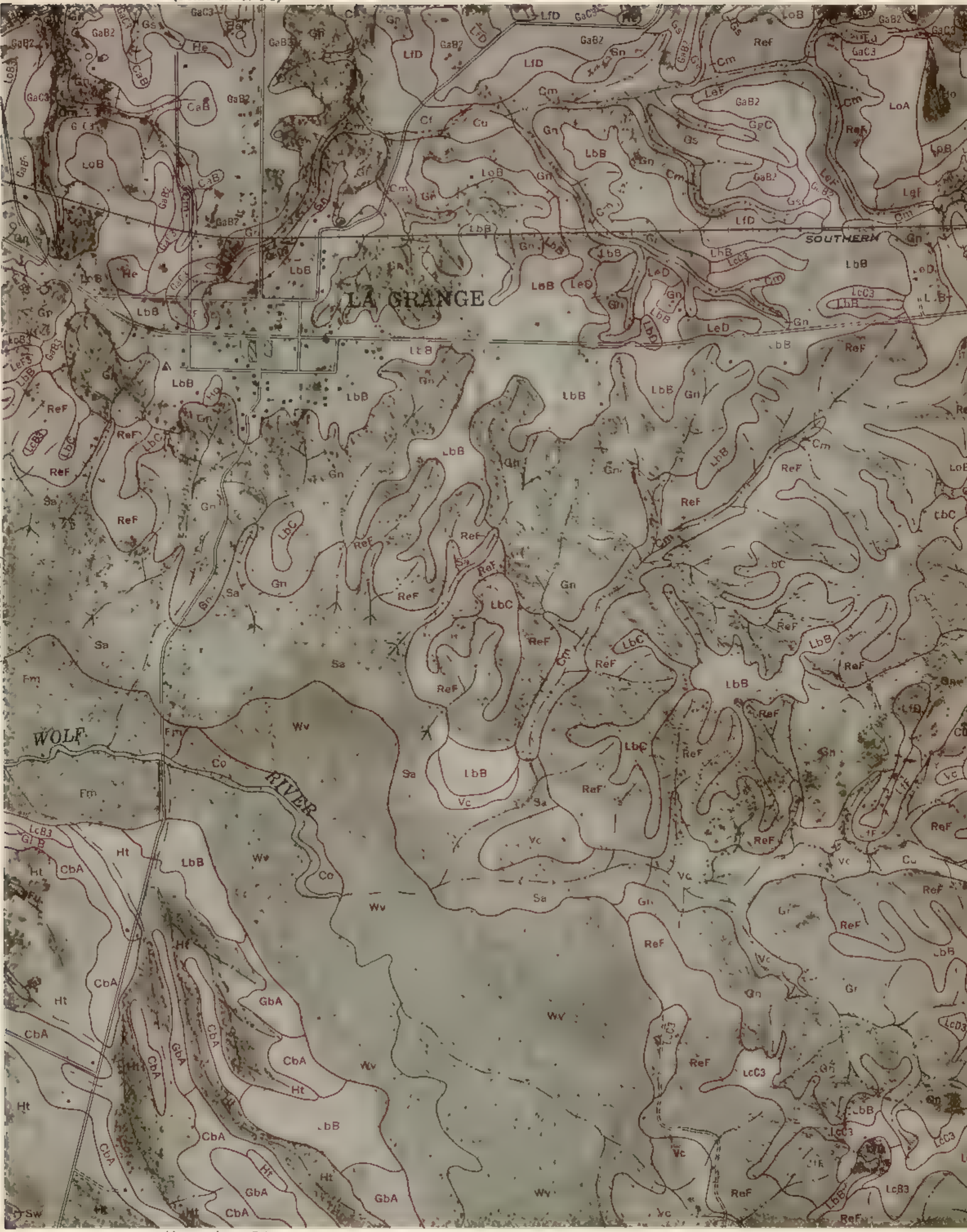
76

(Joins sheet 69)


WOLF
RIVER
SOUTHERN
(Joins Sheet 77)
0
5000 Feet

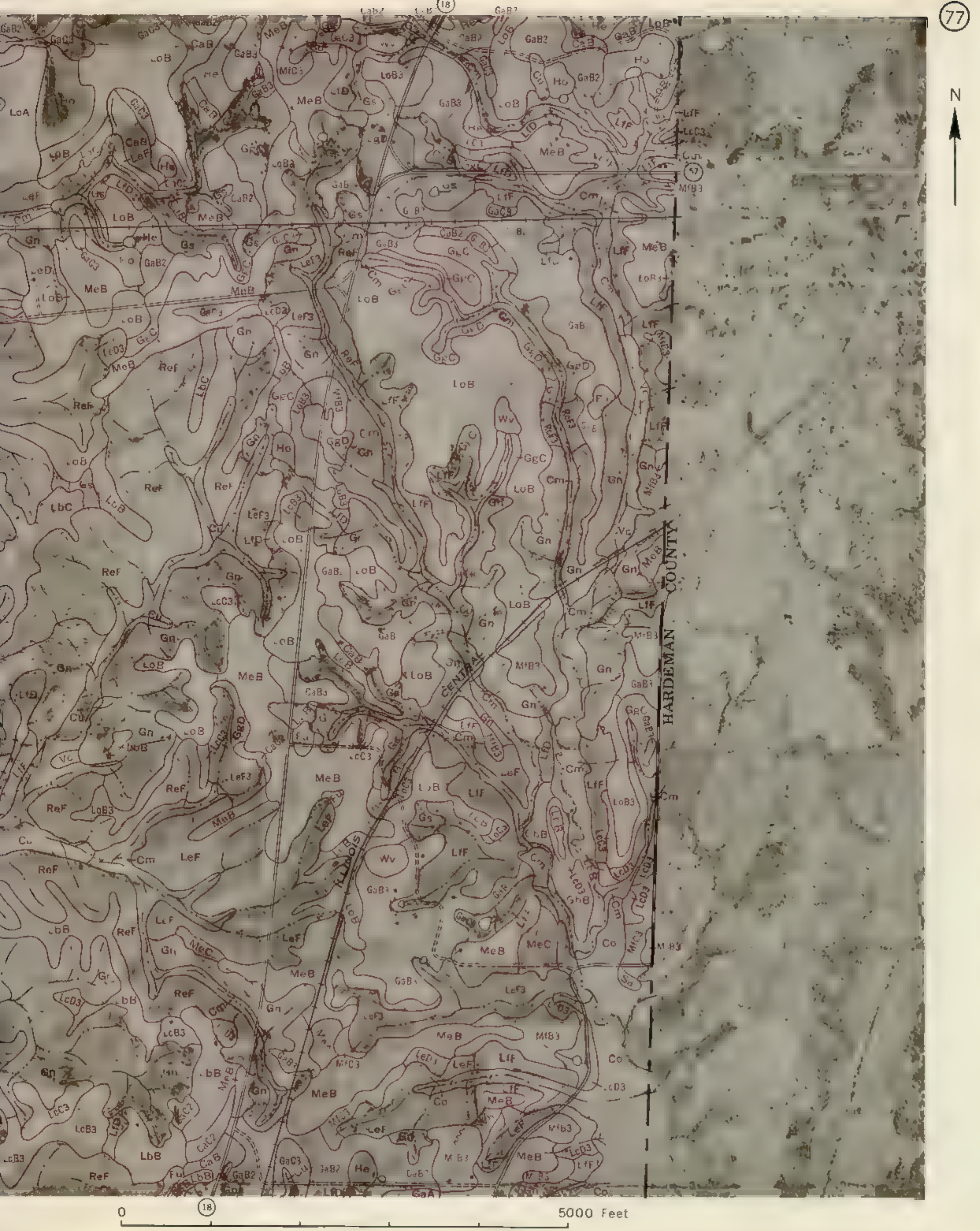
(Joins sheet 70)

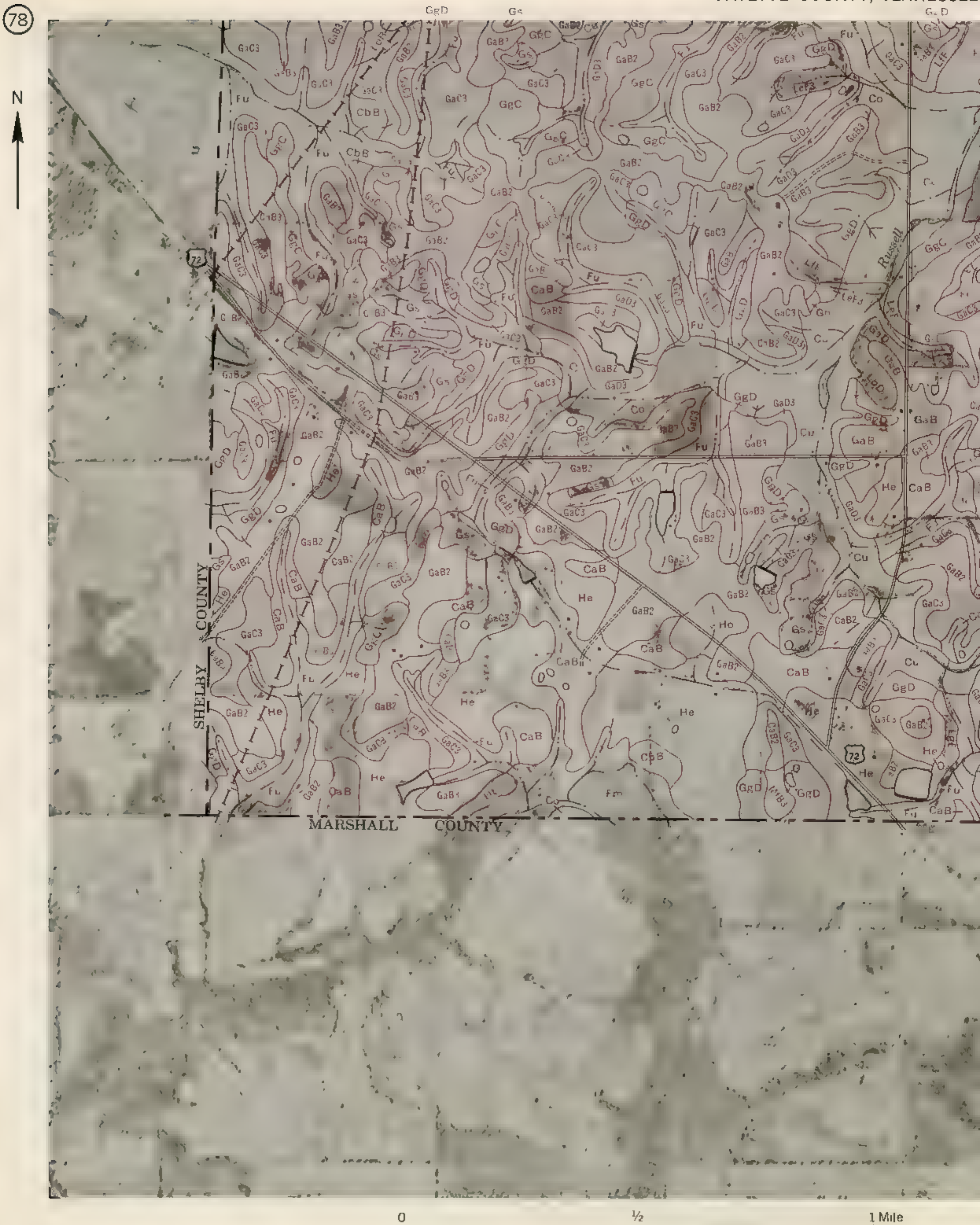
(Joins sheet 76)



(Joins sheet 84)

0 ½ 1 Mile


77
N
18
57
HARDEMAN COUNTY
ILLINOIS CENTRAL
0
5000 Feet


N
SHELBY COUNTY
MARSHALL COUNTY
Russell
72
0
½
1 Mile

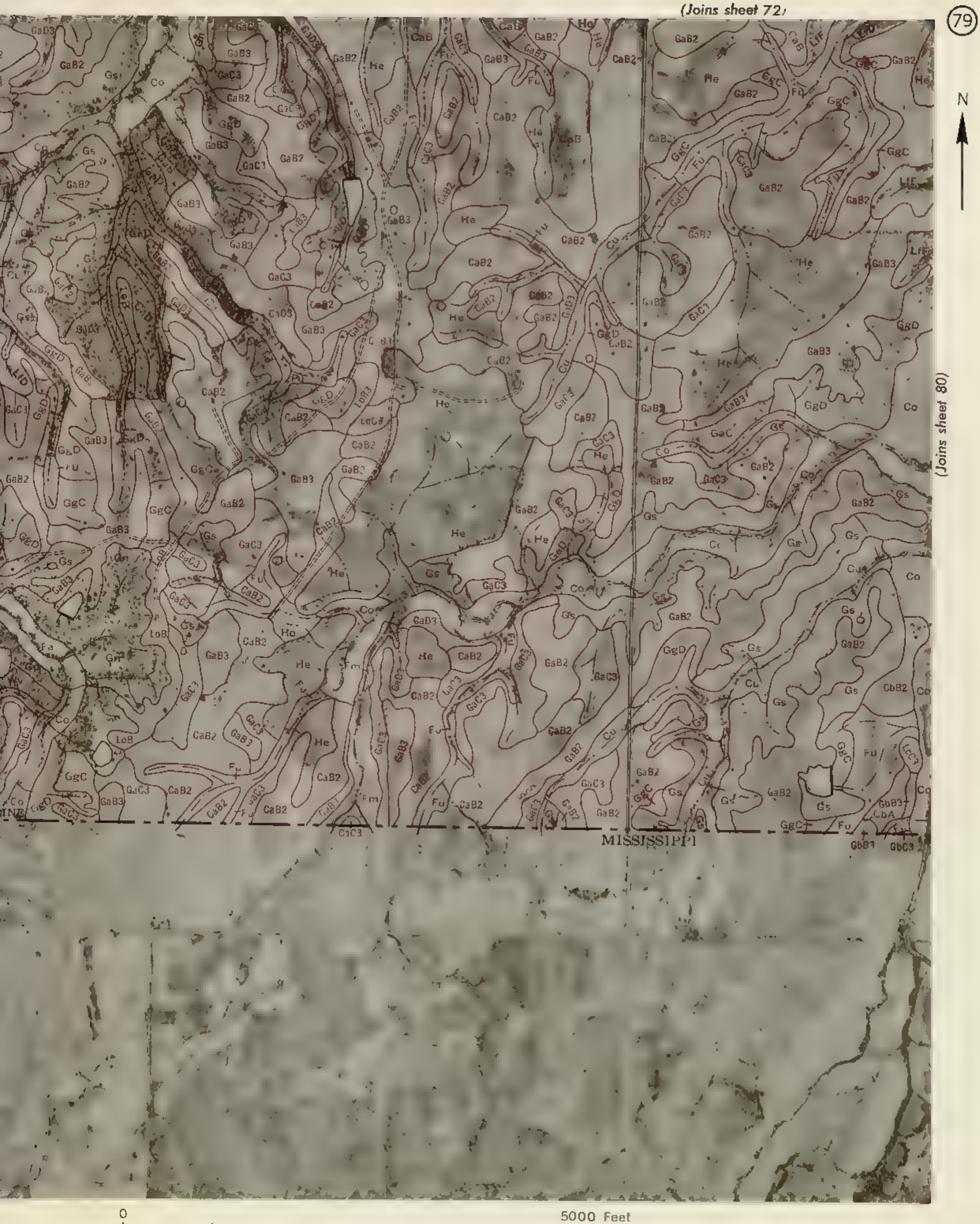
ENNESSEE - SHEET NUMBER 78

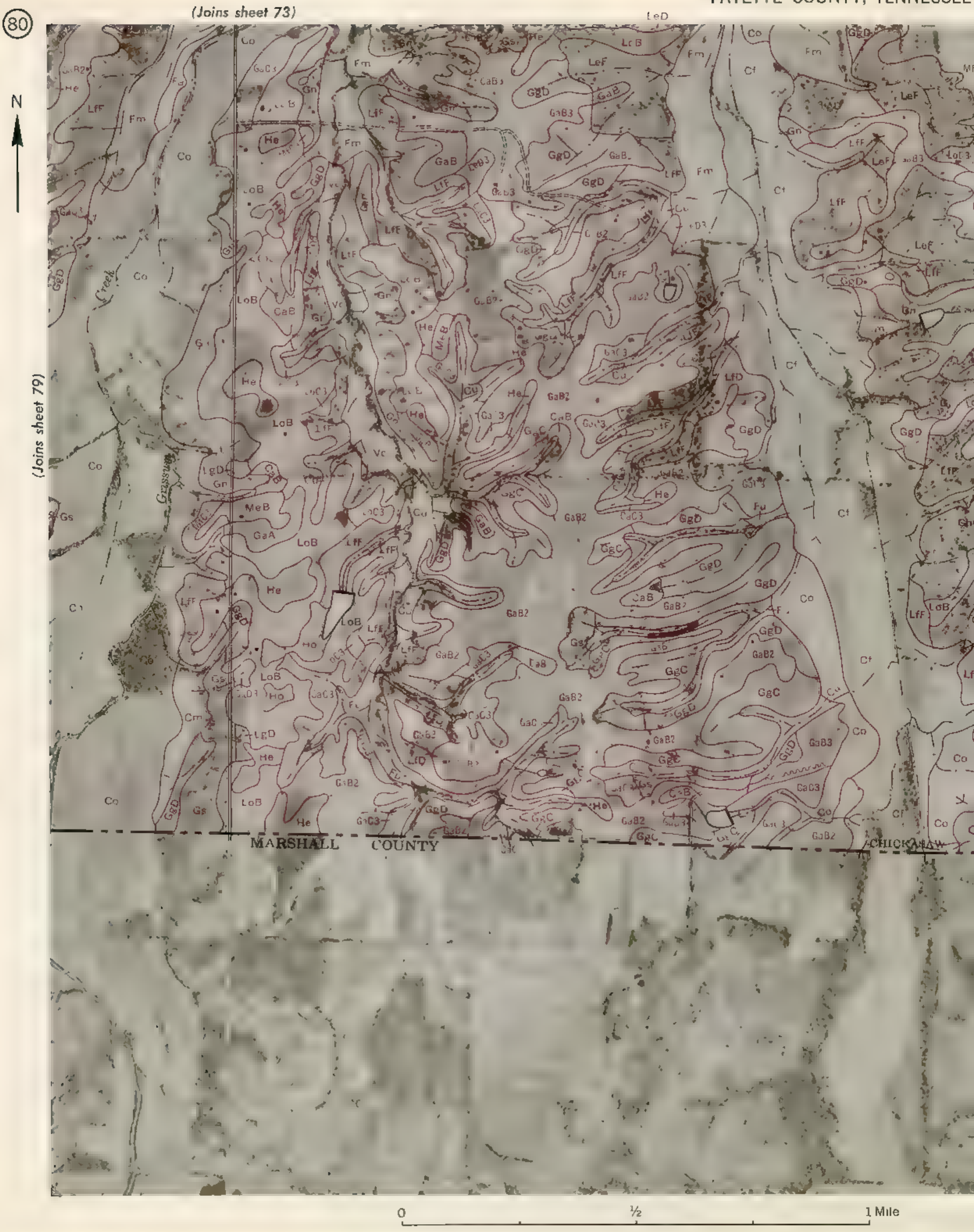
e

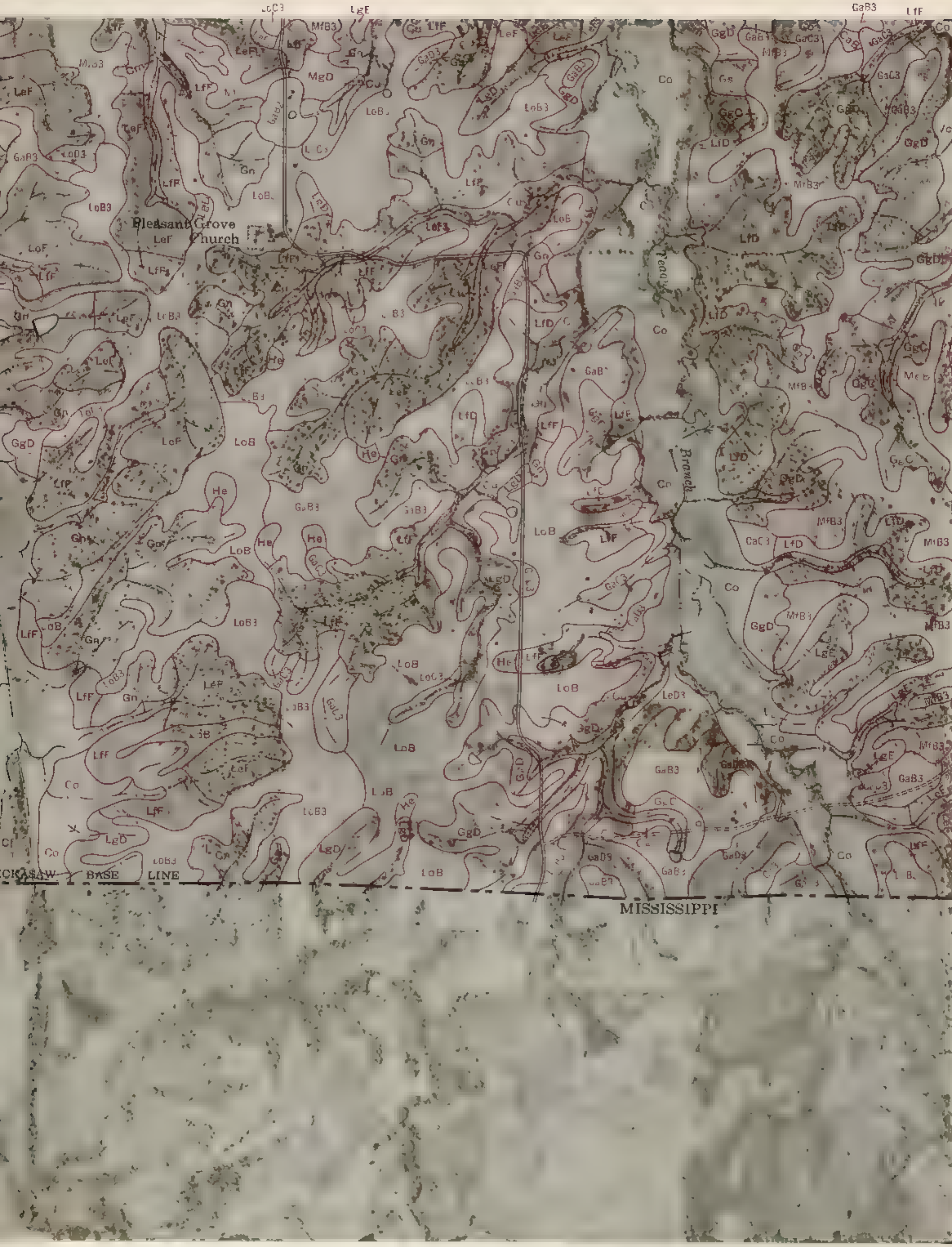
0 5000 Feet


GaB2
(Joins sheet 78)
MARSHALL COUNTY
CHICKASAW BASE LINE
0
1 Mile

TENNESSEE - SHEET NUMBER 79

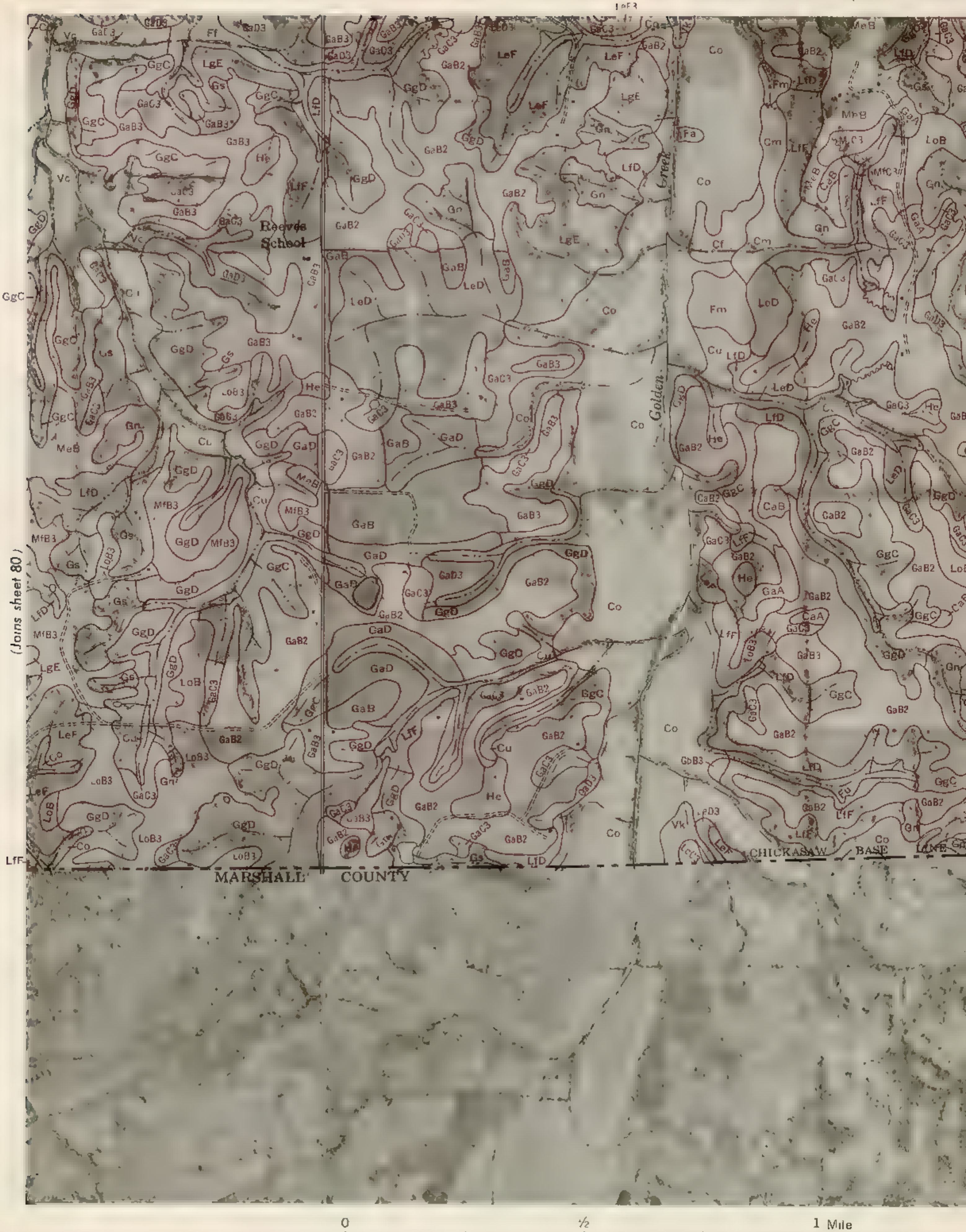


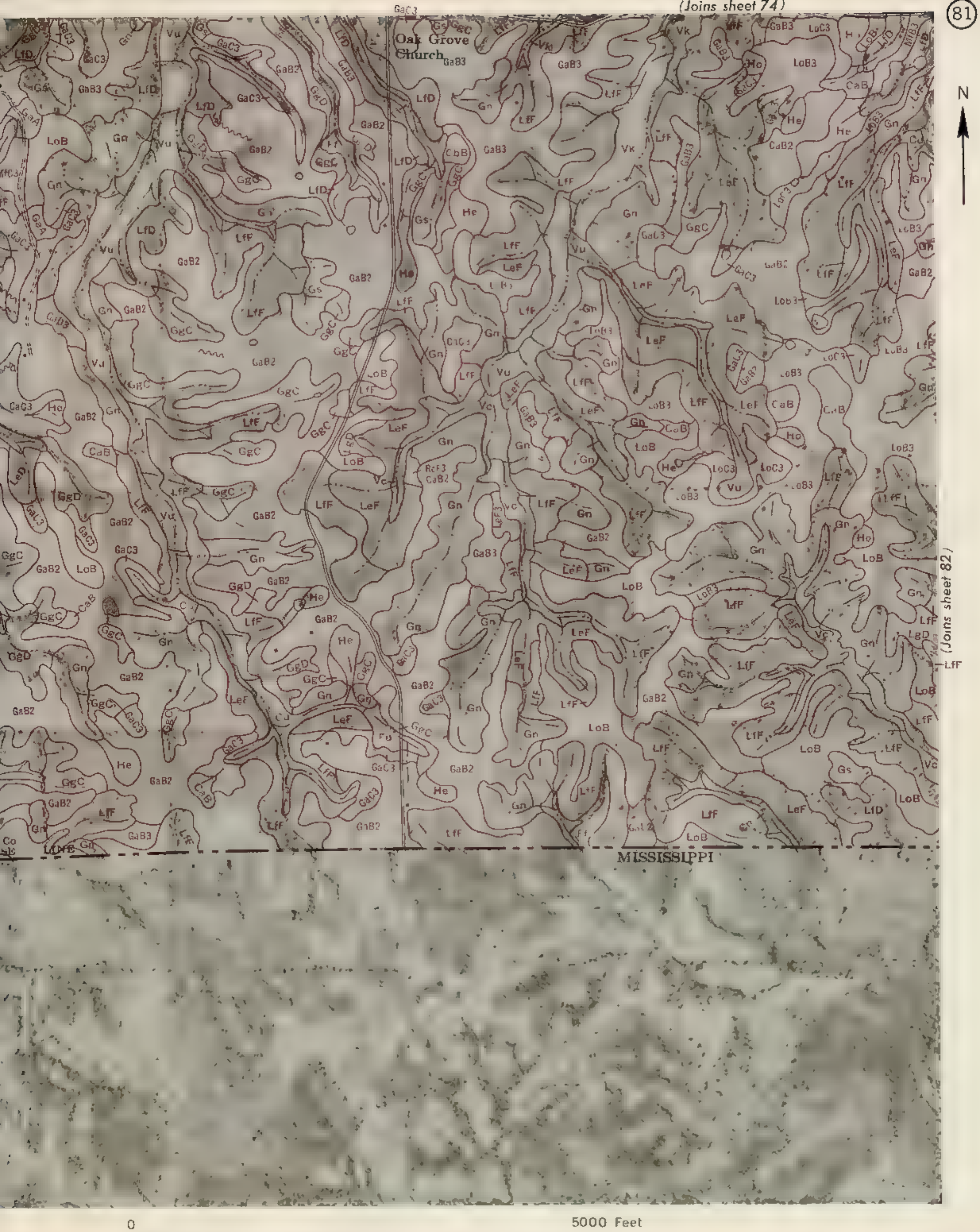

(Joins sheet 73)
(Joins sheet 79)
N
Grassum Creek
MARSHALL COUNTY
CHICKASAW
0
½
1 Mile

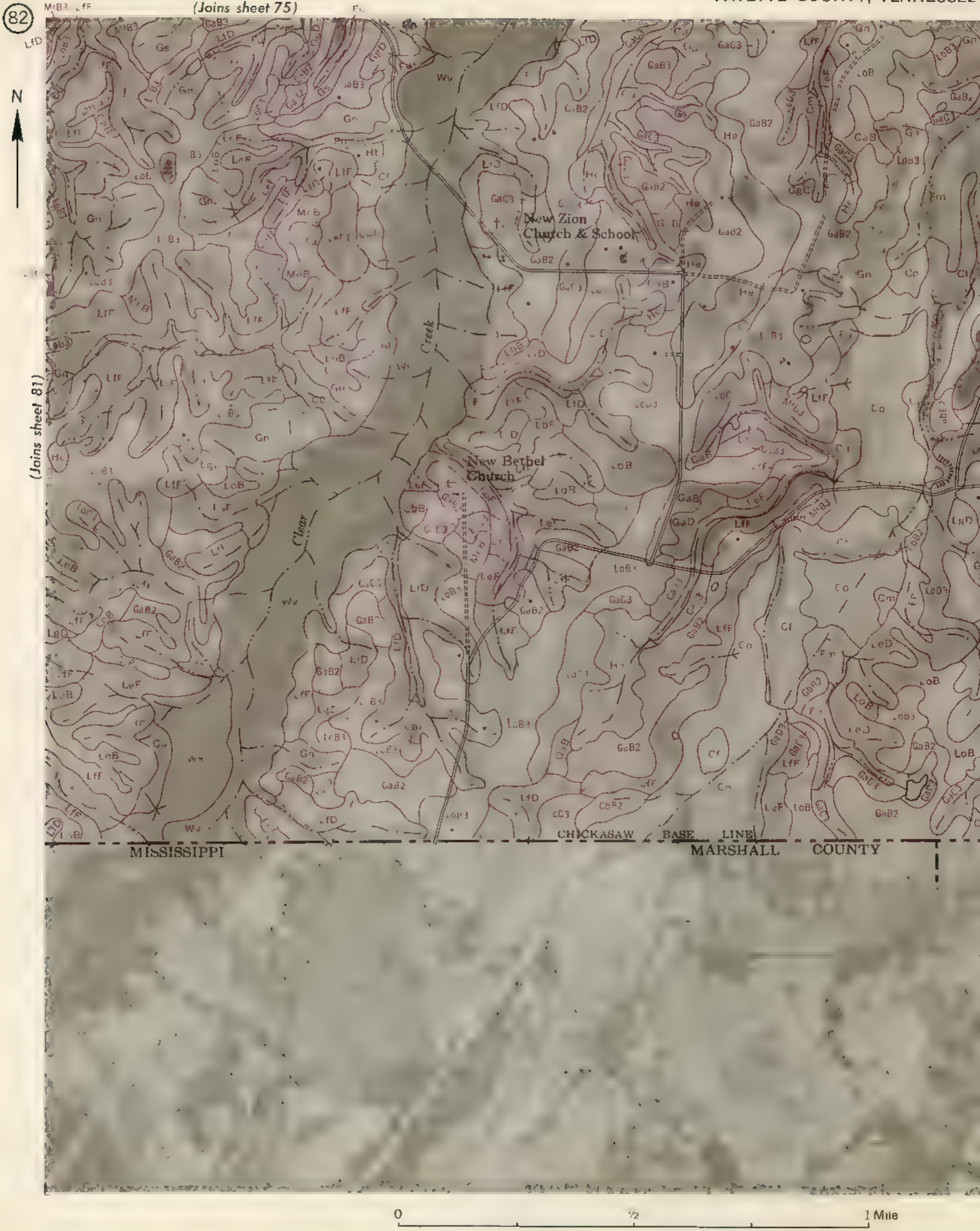


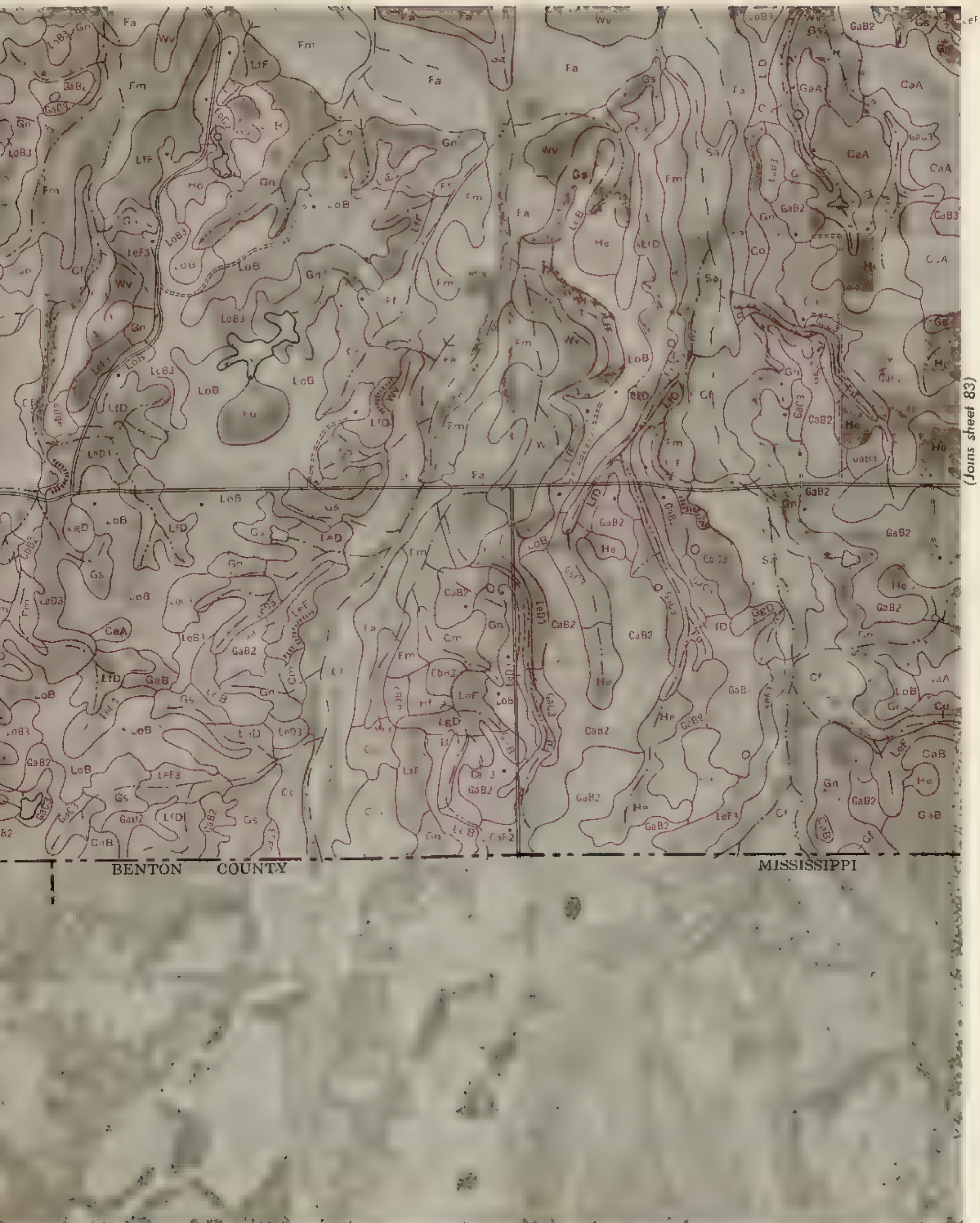
(Joins sheet 81)

0 5000 Feet


Reeves School
Golden Creek
(Joins sheet 80)
MARSHALL COUNTY
CHICKASAW BASE LINE
0
½
1 Mile


(Joins sheet 74)
81
N
Oak Grove Church
(Joins sheet 82)
MISSISSIPPI
LINE
0
5000 Feet


82
(Joins sheet 75)
(Joins sheet 81)
N
New Zion Church & School
New Bethel Church
Clear Creek
CHICKASAW BASE LINE
MISSISSIPPI
MARSHALL COUNTY
0
½
1 Mile



ile 0 5000 Feet


(Joins sheet 82)
Hickory Grove Church
BENTON COUNTY
CHICKASAW BASE
0
½
1 Mile


(Joins sheet 76)
83
N
Blackwell School
(Joins sheet 84)
BASE LINE
MISSISSIPPI
0
5000 Feet

(Joins sheet 77)

N

(Joins sheet 83)

0 ½ 1 Mile

ile 0 5000 Feet